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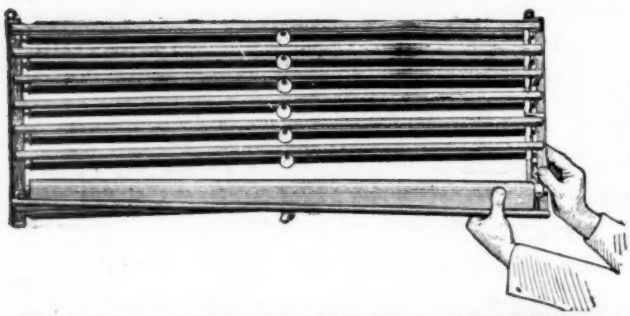

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Some Remarks ON "BONE-SETTING": THE PRACTICE AND RESULTS OF FORCED MOVEMENT.

BY JAMES B. MENNELL, M.D. CANTAB.,
PHYSICIAN IN CHARGE MASSAGE DEPARTMENT, SPECIAL MILITARY SURGICAL HOSPITAL, SHEPHERD'S BUSH, W.; MEDICAL OFFICER, PHYSICO-THERAPEUTIC DEPARTMENT, ST. THOMAS'S HOSPITAL.

THE whole subject of the treatment of the after-effects of injury is interwoven with that of the administration of forced movement, and this in turn is intimately connected with the art of what is commonly known as "bone-setting." The principles which underly the administration of forced movement in the massage-room are very similar to those that should control forced movement under an anæsthetic. I am constantly asked to expound the principles of "bone-setting," to explain as far as I may why the quack "bone-setter" is able to flourish so exceedingly, and to compare the results of "bone-setting" with those of orthodox practice. The first reflection is that the material on which the "bone-setter" thrives should never exist. This does not mean that the formation of adhesions can always be wholly prevented, but it should be, and may be, very greatly eliminated; and, whenever this is impossible, the adhesions should be broken down at the earliest possible moment. Speaking generally, it may be said that the "bone-setter" flourishes, not because people suffer injury, but on account of the treatment they receive. The doctrine of fixation, rest, and splintage is his great ally; his enemy is the treatment of recent injury by mobilisation. Until the time has come when the old teaching of absolute and prolonged rest after injury shall have been supplanted by Lucas-Championnière's doctrine of the scientific combination of rest with mobilisation, the type of disability which fills the "bone-setter's" rooms will never decrease.

But, do what we may, no amount of skill in treatment will always prevent the formation of adhesions after injury, especially in the presence of sepsis; and, if they form, it is essential that we should know how to deal with them, and carry out our treatment as early as possible.

It has fallen to me to encounter many of the failures of the "bone-setter," and from them much may be learnt. I have also had the most valuable and, I believe, uncommon experience of witnessing the results of mobilisation under anæsthesia as practised by a very large number of different surgeons—some, as I believe, too conservative, some too drastic. I have also discussed this subject very widely with surgeons on both sides of the Atlantic, and have been able to form conclusions as the result of these varied experiences. In my own practice I know only too well how often I have withheld my hand when movement under anæsthesia would have saved prolonged treatment, pain, and tedious convalescence. I know, too, why I have been so often tempted thus in the past, and the reason may be summed up in one word—failure. It was only when I realised the cause of failure that I again began to practise manipulation under anæsthesia and formulated the principles which I believe should govern the art. Now this method of treatment is a mainstay on which I frequently rely not only to hasten convalescence, but very often to render possible cure of disability.

CAUSES OF FAILURE.

The cause of my failure in earlier days was dual in origin; first, I did not know what the natural movements of joints were, and second, I tended to do too much. Because a patient is unconscious he cannot feel pain, but this is no excuse for mobilising a joint indiscriminately. During conscious life reflex contraction of the muscles that oppose a movement invariably takes place so as to limit the movement before undue strain is placed upon normal structures. Under anæsthesia this protective reflex is lacking, and so it behoves us, if we would avoid inflicting injury, to exercise even more care when we approach the limit of movement than we should use were the patient conscious.

Then comes a consideration which I believe to be very generally overlooked, but clinical experience has convinced me of its accuracy. This is that adaptive shortening takes place in the body with astounding rapidity, and particularly in the presence of pathological change, even though this change is only reflex wasting of muscle. Each muscle fibre and group of fibres is surrounded by a connective-tissue sheath, and this sheath is endowed with the property of elasticity. Deprived of its function of shortening and lengthening, the sheath seems to lose its capacity very rapidly, and, for the time being, becomes comparatively inextensible. The whole muscle mass, in other words, has undergone adaptive shortening. Restoration of function alone restores the elasticity. If, then, we imagine that the movement, say, of extension of the elbow has been limited by adhesions in or round the joint for some weeks, it follows that the flexors throughout that time have never been fully stretched. The elasticity of the fibrous tissue which goes to the make-up of the anatomical muscular mass has, therefore, never been utilised to the full extent since the day when adhesions which limit extension first began to form. The result is that the elasticity remains unimpaired only through the range of movement allowed by the adhesions. Beyond this range the elasticity is impaired, or, if the lesion is of long standing, may be almost non-existent. When the patient has been anæsthetised and movement has been performed through sufficient amplitude to rupture the adhesions, all further attempt at movement will tend to place undue strain upon the fibrous tissue, which, as we have seen, has suffered impairment of its extensible properties owing to disuse. Forced movement through the full anatomical range may thus inflict severe injury on the fibrous tissue that has lost the elasticity which is essential for the natural performance of the movement.

RULES IN MANIPULATION.

The first golden rule in manipulation under anæsthesia should therefore be that no further attempt at movement is to be made in any direction when once a definite adhesion has been felt to give way. If this rule is ignored injury will inevitably be inflicted on the fibrous tissue which forms a large bulk of the muscles which oppose the movement. Movement in other directions may, however, be continued. Two criticisms then arise. First, full range of movement may not have been restored by one manipulation; and, second, we do not know that, because one adhesion has been broken, there may not be others which still limit movement.

The answer to the first criticism is this. Rupture of a pathological band is practically painless, and the local reaction is mild and transitory when compared with the considerable reaction that follows undue stretching—i.e., spraining—of physiological tissue. There should be, therefore, no interference with function and the voluntary use of the limb after skilled mobilisation, except that due to inelasticity of the fibrous tissue within the muscles, and perhaps a mental incapacity to realise that movement or use, which has hitherto been impossible, is restored. Functional use of the limb will rapidly restore the elasticity either up to the anatomical limit or up to the limit allowed by other adhesions, should these exist. If, on the other hand, we have forced movement to the anatomical limit, and have thereby overstretched the temporarily inelastic fibrous tissue, we have inflicted a more or less severe sprain, since normal movement may be excessive for structures that have undergone adaptive shortening. Thus we inflict a fresh injury which may be no less difficult to cure than that which the patient originally sustained.

The answer to the second criticism is that it is better to break down any second adhesion under a second anæsthetic and inflict no further injury, than to break down both at once and inflict an injury which is a potent predisposing agency to the formation of new adhesions. Essentially is the old adage "More haste, less speed" applicable to forced movement under anæsthesia.

The criterion of success after the manipulation should be that the patient has increased function; loss of function speaks of an error in technique. Unfortunately this is not generally realised, and many surgeons labour under the delusion that, should the necessity of giving a second anæsthetic arise, they made an error in not doing sufficient on the first occasion. The "bone-setter" suffers from no such delusion, and frequently arranges from the outset to perform a series of manipulations when proposing to loosen a joint in which there has been gross limitation of movement for a considerable time. His practice is sound, and we should undoubtedly accept this lesson he teaches. More active harm is done by excessive movement under anæsthesia than passive harm by neglect to use this most valuable remedial agency.

CHOICE OF TIME, ANÆSTHETIC, AND TECHNIQUE.

The question as to when forcible manipulation should be performed is not an easy one to answer. If the injury has been uncomplicated by sepsis, it is probably unwise to proceed until six weeks have elapsed since the receipt of injury. I have fixed this limit for the simple reason that it is by no means certain that the exercise of the voluntary function of the limb will not restore the movement that is lacking till at least this time has elapsed. If sepsis has been present, and if this has obviously played some part in causing the limitation of movement, it is probably unwise to manipulate the part forcibly for several months, three to six, according to the severity of the sepsis. The same applies to cases in which loss of function is due to osteo-arthritis and similar causes. I make it a rule also to hold my hand for three months at least in all cases where injury has resulted in the outpouring of an excessive callus formation.

It is not uncommon for attempts to be made to break down adhesions without the aid of an anæsthetic. Provided the limitation of movement is small, and the original injury to the joint in question is probably slight, this is quite justifiable. For instance, it is often a simple matter to rupture adhesions in the inferior radio-ulnar joint after a Colles's fracture without an anæsthetic. On the other hand, an attempt to flex rigid metacarpo-phalangeal joints in similar manner is opposed by the full strength of the long extensors in the fore-arm, and the movement cannot be performed without severely straining and thus injuring them. It should be a guiding rule, therefore, always to administer an anæsthetic whenever we are liable to encounter severe muscular resistance to our manipulations.

The choice of anæsthetic depends chiefly on the skill of the anæsthetist. Nitrous oxide gas suffices if adequate skill in administration is forthcoming, and if the manipulator knows exactly what to do and how to do it. Very few seconds should suffice for the manipulation of most joints, and a skilled anæsthetist can almost always ensure this much at least of complete relaxation with nitrous oxide gas. For manipulation of the hip or back it is wise to use some other anæsthetic, as more time is required for these manipulations than in most other joints.

The grip employed during manipulation is important. Our aim being to rupture an offending band *and no more*, it is usually wise to use as short a leverage as possible. Then, too, we want to reduce subsequent pain and disability to a minimum, and experience shows that this end is attained better if the adhesions are broken by a single sharp movement than by a slow gradual tearing. Rapidity of movement should be combined as far as is compatible with complete control, which checks the movement the moment the objective—i.e., the rupture of the adhesion—has been attained. On the other hand, nothing could possibly represent a greater error in technique than to give a succession of ineffective tugs on the offending band. Once its resistance is encountered it must be overcome forthwith; once overcome, the movement must instantly cease.

Hutton's statement that force in pulling or pushing is valueless, but that "the twist is the thing," gives the key to manipulations of most joints. The whole art is the knowledge of what precise "twist" to administer to each individual joint.

GENERAL PROCEDURE.

The first thing to ascertain definitely is what movement or movements are limited or give rise to pain, and it is usually wise to compare the mobility of the sound limb with that which we are about to manipulate. Then, directly the patient is relaxed under the anæsthetic, every movement which the patient can perform freely and voluntarily is carried out rapidly. If any resistance is encountered we know the patient is not relaxed, and await a more propitious moment for breaking the adhesions. Once relaxation is assured, the joint is moved firmly and steadily past the obstruction. If movement has not been limited, but only painful, full movement through the anatomical limits should be performed in all directions. If movement has been limited, only those movements which have previously been free and painless may be performed to the full. As we pass the limit set by adhesions, one of two things will be noticed: either there will be a sharp crack or click, or a dull tearing, often felt rather than heard. Instantly manipulation becomes more guarded, and is carried on only sufficiently to feel

that free movement is now possible past the point to which it was formerly limited. The manipulation then ceases in the direction chosen, and the process is repeated in any other direction in which movement had previously been limited. Nothing whatever is to be gained by repetition of movement in any direction, if those already performed have been carried through with necessary exactitude. To repeat a movement is a confession of doubt as to the skill with which our performance has been carried out.

The patient is allowed to come round and, as soon as possible, is called upon voluntarily to perform the movement which has hitherto been limited. If the movement is performed more freely or with less pain, the manipulation may be regarded as having been skilfully performed; if it is more limited or if pain persists for more than, say, half an hour to an extent that limits voluntary activity, then we must have grave doubts as to whether we have not been over-zealous. It is essential that properly devised exercises should be prescribed forthwith, and that these should be faithfully carried out. If any period of rest is necessary after the manipulation on account of pain, the whole success of the proceeding is jeopardised.

If the limitation of movement has been due to dense muscular adhesions, or to adhesions within tendon-sheaths, an alternative course is open to us. If we proceed as already indicated, very little progress will be made and frequent repetition will be essential. As it is usually unwise to repeat manipulation within a week, this means a prolonged and tedious recovery. It is well, then, to have an alternative method of treatment, and this is to be found in free manipulation followed by immediate fixation in plaster over *very* thick padding. The reaction is intense and pain acute, usually for several days, and nothing except morphia suffices as a rule to secure sleep. The plaster should be left untouched until the pain is definitely easing off, which usually means a delay of several days. Then it is cut sufficiently to allow the part to be massaged while still resting on the padding on the surface opposite to our manipulations. Pure relaxed movement is then performed, as for recent injury, in the direction opposite to that in which the limb has been fixed; the original posture is next restored, and the portion of the plaster removed for the manipulation is replaced in position and fixed there rigidly by adhesive plaster. The retentive apparatus is usually required for four weeks, after which it is discarded by slow stages.

THE MOVEMENT OF INDIVIDUAL JOINTS.

A few details regarding the essentials to be noted when moving individual joints call for special emphasis.

The Shoulder-joint.

When dealing with the shoulder it must be remembered that few people can, when recumbent, touch the side of their face with the surface of the arm by movement solely in the horizontal plane. The limit of normal movement in this direction depends on the position of rotation of the head of the bone, and the widest range of abduction is reached when the internal epicondyle faces directly forwards. Even so, full abduction is rarely possible without a small degree of flexion. Movement in the horizontal plane may be performed until the angle between the arm and the neck is some 30°; the limb then requires to be carried forward before it is dropped back nearly into the former plane, resting against the side of the head. Neglect of this precaution only tends to strain normal structures, and should the surgeon imagine that the normal limitation of movement is pathological a very severe sprain will be inflicted. After abduction movement has been performed the elbow is flexed to a right angle and carried forward across the chest. External rotation is performed in this position, but natural movement ceases considerably before the forearm is vertical. Abduction is then performed, combining this with both external and internal rotation, and the elbow is carried round the base of a cone of which the head of the humerus forms the apex. Until the abduction is just short of a right angle the scapula should not have moved; if it has done so it is well that an assistant should check it by pressure on the axillary border. The movement proceeds until an offending band is felt to give or until the movement has been completed as already indicated. The patient is then rolled on to his side and internal rotation is carried out until the posterior aspect of the second finger rests vertically upon the spinous processes between the scapulæ. Movement in any given direction ceases the moment any definite obstruction has been overcome. Only one other detail calls for emphasis. It is well to guard the biceps tendon with the thumb as it rests in the bicipital groove throughout the manipulation

The Elbow-joint.

When manipulating an elbow one special precaution is necessary which does not apply to the treatment of other joints. Here, too vigorous treatment is liable to meet with a disaster which is not likely to be encountered in other situations. If there has been a recent fracture in the neighbourhood, an excessive outpouring of callus is very liable to take place; while, if no fracture has previously been present, vigorous movement is liable so to damage the bone that a similar disaster is likely to follow. The greatest caution is needed when manipulating an elbow in a patient who has recently sustained a fracture through the olecranon fossa, fracture of the anterior part of the head of the radius, or a dislocation of the joint, even though X ray examination reveals no evidence of injury to bone. After fracture of the olecranon, a T-shaped fracture into the joint, or oblique separation of part of the head of the radius, less caution is called for. No special laws govern the performance of flexion, though the existence of the "carrying angle" must be kept in mind; but when extension is limited, two points of paramount importance must be regarded. First, every care must be taken to prevent the head of the radius from being pulled forward. This can be done by exerting backward pressure with the thumb over the head of the bone throughout the manipulation. Then, second, it is essential to note that the movement is performed with due respect to the "carrying angle." Unless this is done the lateral ligaments on the outer side of the joint are sure to suffer severe injury. Full extension should, of course, be secured in full supination. Far better is it to do too little when manipulating an elbow than to do too much.

Radio-ulnar and Wrist-joints.

Manipulation of the radio-ulnar joints requires attention to the fact that the movement at the lower joint differs from that at the upper in so far as it is not a pure rotation. As the lower end revolves from supination to pronation round the

head of the ulna, it simultaneously glides forward. It is always well, therefore, to free the antero-posterior movement which is possible at this joint before forcing rotation. This should then be performed with firm backward pressure over the lower end of the radius for supination, and with forward pressure during pronation. The hand on the front of the wrist in this case exerts its pressure over the region of the lower end of the ulna. Unless this antero-posterior movement is secured the posterior ligament of the inferior radio-ulnar joint is liable to suffer severe damage during forcible pronation, and the anterior ligament during supination. If the obstruction is at the upper end of the radius care must be taken lest we inflict injury which will excite callus formation.

The wrist is a difficult joint to deal with as there is so much, as a rule, that requires to be done. The amount of flexion and extension that are possible vary in each individual. It is essential, therefore, to examine the mobility of the sound wrist. Pure ulnar and radial deviation are well marked and often of wide range, but (and this point is often missed) there is a very considerable amount of true rotation possible independent of the radio-ulnar joints. Finally, there is not only the radio-carpal joint to consider, but, even more important very often, there are the joints between the inter-articular fibro-cartilage and the head of the ulna above and the carpus below. In full pronation these joints are, to all intents and purposes, locked; but in supination there should be very considerable antero-posterior mobility. The loosening of these joints is often all that is necessary in order to restore perfect function to a practically useless limb. Unless they are freed no amount of manipulation of the wrist will ever restore freedom of movement or function.

Joints of the Hand.

Manipulation of the hand is a somewhat lengthy process, but it should be possible to do all that is necessary under gas. Yet time is sure to press, and it is well to have a regular routine in mind so that nothing may be missed. The first carpo-metacarpal joint is freed by grasping the thumb and exerting full tension in the long axis of the metacarpal. The digit is then carried into full abduction posteriorly and is swung round into full opposition. Great care is necessary to avoid torsion at the metacarpo-phalangeal joint during the movement. The joints between the bases of the remaining metacarpals are next freed by exerting a posterior pressure on the head of one metacarpal and an anterior on the next adjacent, and then reversing the movement. Each pair is dealt with in turn. Having done this we ensure that our objective has been secured by forming the posterior convex arch which the heads of the metacarpals can assume and flattening it out again.

Digital Joints.

Manipulation of the digits is frequently mismanaged. It cannot be emphasised too often or too strongly that the metacarpo-phalangeal and inter-phalangeal joints are not pure hinge joints. A marked gliding element is present and, unless this is regarded, the posterior ligament and probably both lateral ligaments will be torn during forced flexion. Considering the metacarpo-phalangeal joint as a type, in full extension the base of the proximal phalanx rests upon the extreme distal extremity of the articular surface of the metacarpal. If hyper-extension is possible it rests towards the posterior aspect. In full flexion, on the other hand, the situation of the base of the phalanx has shifted very considerably, and it now rests well down on the anterior surface of the bone. The nature of the manipulation required is now manifest. Little or no attempt is made to *bend* the joint. The digit is grasped firmly and longitudinal tension is applied. Abduction and adduction of the phalanx on the metacarpal are first given in each direction, then rotation is performed with the joint very slightly flexed. The lateralisation is given in full extension, but rotation is very limited in this position and only becomes free when a minute amount of flexion has been added. Then pressure is exerted anteriorly on the head of the metacarpal and posteriorly over the base of the phalanx. Instantly flexion begins. The direction of the pressure over the back of the base of the phalanx alters and tends to follow the base of the bone round the head of the metacarpal until it is exerted directly in the long axis of the metacarpal, when full flexion is reached. The movement should partake far more of the nature of movement of the head of the metacarpal on the phalanx than vice versa. The wrist, of course, should be kept in dorsi-flexion throughout. Extension is performed by reversing the process. In this way only can the ligaments be saved from tearing. At the proximal inter-phalangeal joints the tendons of the interossei are thus saved from damage—an accident which I have seen lead to almost irretrievable injury. Each joint in each digit is treated in similar manner. It is fatal to force full movement if rigidity has been serious or of long standing, or if it is in part the outcome of sepsis. In these cases movement should be performed in each direction just past the "dead point" and no more. Even though the amount of movement gained is minute, still it is enough; and it paves the way for greater gain at a subsequent manipulation. If too much is attempted the last condition of the patient is sure to be worse than before the manipulation. It is hard to avoid doing too much.

The Hip-joint.

The manipulation of the hip should always begin with rotation. This is performed with the limb lying in full extension on the couch. The knee and hip are then flexed simultaneously until the sole of the foot rests on the couch as near to the buttock as is possible, or as near as the foot has travelled after obstruction has been overcome. Abduction and adduction follow in this position. Then the limb is grasped and rotation is again performed in the flexed position, followed by circumduction as the joint is extended. The hip and the first carpo-metacarpal joint afford examples of joints which, when stiff as the result of old-standing osteo-arthritis, offer the most encouraging prognosis in treatment by manipulation. The course of the disease is not altered, but mobility is frequently increased and pain diminished. Needless to say, manipulation performed during the active stages of the disease leads to disaster.

The Knee-joint.

The most satisfactory position for the manipulation of the knee is with the patient recumbent in such a position that the end of the couch can be lowered from beneath the posterior aspect of the limb as far as the level of the junction of the middle and lower thirds of the thigh. The first essential step is to ensure that there is free lateral

mobility of the patella. If firmly fixed, a not very severe strain will sometimes suffice to cause a transverse fracture. Flexion is then performed either to the limit of movement or until an adhesion has been felt to yield. A firm grip is then taken by the disengaged hand on either side of the joint just above the two tuberosities of the tibia, and the leg is rotated alternately inwards and outwards as extension is once more restored. Still maintaining this grip to guard the semilunar cartilages, the last few degrees of complete extension are added with firm pressure, so as to ensure the full locking of the joint by the final rotation of the tibia on the femur. Great care should be taken to ensure that there is no sudden jarring when the full extension is reached, otherwise the internal semilunar cartilage is liable to be injured.

The Ankle-joint.

The ankle-joint presents no special features from the manipulative point of view, save only that we must remember that little force usually suffices to effect our object and that the external ligament is very easily sprained. The chief difficulty is that the manipulation is most easily performed if the knee is flexed. Hence the best position for the manipulation is with the leg dependent over the end of the couch, or, failing this, with the patient prone and the leg vertical—a position none too easy to secure under gas. It should be remembered that flexion and extension take place in an unexpected plane—namely, in a position of apparent slight eversion. Dorsi-flexion, moreover, should be performed by tension downwards on the heel, and not by pushing upwards of the metatarsal heads. If we rely on this lever for our force the joints in the anterior part of the foot are almost sure to be strained. There is only slight lateral mobility in the ankle-joint, and this is in acute plantar-flexion. The adhesions that follow a sprained ankle commonly do not yield to manipulation of the ankle only. If the tendon sheaths of any of the tendons that pass from the leg to the foot have been involved, it is usually necessary to add manipulation of the foot-joints simultaneously.

Joints of the Foot.

The joints of the foot when stiff from osteo-arthritis afford a worse prognosis as the result of manipulation than any other. Indeed, increase of mobility may yield only increase of pain on walking. On the other hand, if the disability has followed trauma and the joints are free from disease, results are frequently secured only less "miraculous" than those that follow manipulation of a knee, in which mobility has been perfect and the disability limited to occasional pain or sensation of weakness. The ankle should, in the first place, be locked in dorsi-flexion, and the os calcis is then lateralised by a firm grip on the heel. The intertarsal joints are next dealt with by performing a kind of wringing movement of the fore part of the foot upon the hind part. It is not enough to secure eversion and inversion of the foot at the subastragaloid joint; definite rotation (almost pronation and supination) of the fore part of the foot is possible. The base of the first metatarsal is endowed naturally with considerable mobility on the internal cuneiform, and particularly in the directions of dorsi- and plantar-flexion, and attention to this joint will frequently transform a well-nigh helpless cripple into one who can walk freely without pain. The laws which govern manipulation of the joints of the hand all apply with equal force to those of the foot. One small detail is perhaps worthy of notice. It is not uncommon for the "bone-setter" to claim that he cures flat-feet by manipulation. To this extent perhaps he is right—flat-foot in itself is not usually a disabling condition; it is only when mobility between the joints is impaired that pain and disability are present. Otherwise surely every ballet-dancer should be completely crippled! A "bone-setting" operation may therefore cure the pain of an early flat-foot case; it does not cure the condition. So, too, the claim is sometimes made that cases of metatarsalgia can be cured by manipulation. Again there is a germ of truth hidden beneath an unlikely statement. Sometimes it will happen that a patient with this trouble will trace its origin to a definite occasion on which he trod on a pebble, or walked over cobbles in thin shoes. His pain may be that of metatarsalgia; but, on examination, the anterior arch is not found to be "broken" unduly and there is no pain on pressure, only on movement. Then manipulation offers every prospect of cure, as the trouble has originated in a simple traumatic arthritis. Anæsthesia may not be required for the "cure."

Little need be added on the subject of breaking down adhesions that are due to trauma of muscles or of tendon sheaths. The chief thing to remember is that no harm is done by doing too little; severe injury is always inflicted if we do too much. Repetition of the manipulation is also frequently advisable.

TRAUMATIC LUMBAGO.

One word remains to be said concerning the so-called "traumatic lumbago." The victim is not a malingerer, though often he is dubbed as such. The disability is very severe; if the origin is due to adhesions following rupture of a few muscle fibres, the treatment fortunately is easy and usually satisfactory. The patient is given a general anæsthetic, and is placed fully recumbent. The hip of the less painful side is fully flexed into the abdomen and is again placed by its fellow. The process is repeated on the opposite side. Then both hips are flexed together on to the abdomen, flexion of the knee in each instance coinciding with the flexion of the hip. When the anterior surfaces of the two thighs are as far as possible in contact with the abdomen the sacrum is raised well away from the couch. The pelvis is then waved freely from side to side as the extreme flexion is slowly relaxed, and rotation of the spine is performed. When lateral movement is no longer possible without dragging the sacrum from side to side on the couch the patient is placed fully recumbent once more, and the hands are passed round the trunk till they meet in the mid-line behind. Then firm traction is exerted forwards as if attempting to raise the whole weight of the body. A considerable arching of the back is thus secured, and lateralisation is administered as the traction is relaxed and the recumbent position is slowly restored. "Traumatic lumbago" is frequently due to a slight tilting of one ilium on the sacrum. The pain can be relieved almost spontaneously by treating the patient prone. One hand is placed over the region of the posterior superior spine and exerts downward pressure, while the other forcibly pulls the thigh backwards.

The cervical region is sometimes affected in similar manner, or symptoms (neuralgic pains in the back of the head and neck, and even brachial

neuritis) may be described in the absence of a history of definite injury. There is no call for anæsthesia for the performance of the manipulations. The patient is placed recumbent, with the head and neck projecting freely over the end of the couch. The head rests upon the manipulator's hands, and the main point that calls for attention is that tension should be given by securing a firm grip either of occiput and mastoid on each side with one hand, or of occiput with one hand and chin with the other—a grip corresponding to that of the collar in ordinary head suspension—before the movements of flexion, extension, lateralisation, and rotation are performed.

At the other end of the spine we meet with that troublesome and often intractable complaint, coccidynia. Sometimes this can be relieved by manipulation, and sometimes it fails. The forefinger must be passed into the rectum, and each joint is then manipulated in turn. In addition to the pure flexion and extension a slight twisting movement should be added. Care must be taken not to be too severe in carrying out the manipulation.

There is no "mystery" in the art of "bone-setting." Certain details require attention and nothing more. We must know what the natural movement of the joint is, we must realise its limits, we must avoid laying any strain whatever on any normal structure—under anæsthesia there is no protective reflex to save it from harm—and all will be well. But under anæsthesia nothing is more simple than to damage normal structures, and then we have to face the unpleasant necessity of dealing with a sprain of our own creation. It is often an easy matter, when administering forced movement without an anæsthetic, to strain severely any muscle that is thrown into reflex protective spasm during the manipulation.

If our object is to relieve pain or secure increased mobility, we have failed if either of these two objects fall short of attainment. In mobilisation under anæsthesia we have very often an excellent example of the fact that in many cases we do not cure, but depend on the patient's voluntary coöperation before the end is achieved. Manipulation will often suffice to cure pain alone, but it is rarely enough to restore movement. After mobilisation the patient must be taught how to improve his mobility as the result of voluntary effort, and without skilled teaching and cordial coöperation the whole procedure may be rendered void and of no effect, for the adhesions will quickly re-form. It is for this reason that severe pain after manipulation should be regarded as an indication of failure. The pain inhibits voluntary action, and without this recovery is well-nigh hopeless. Unless the patient owns up to greater comfort or more freedom within an hour or so of the manipulation, too much has probably been done.

APPLICATION OF PRINCIPLES ENUNCIATED TO TREATMENT BY MASSAGE.

The application of the principles already laid down to manipulation in the massage-room is simple. In the first place, the anæsthesia of forcible manipulation has as its object relaxation of the antagonists that oppose the movement we wish to perform. In massage this place is taken by "active relaxation." As soon as pain is felt this relaxation is supplanted by reflex spasm of the antagonists, which can only be abolished by calling upon the muscles which control the movement to contract. This, of necessity, causes reflex relaxation of the antagonists. In the massage-room, therefore, forced movement should always partake of the nature of assistive movement. Far better is it to assist the action of a muscle than attempt to stretch or tire out its antagonists. There should be no excuse for confounding forced movement with passive movement. The latter can only be administered when the patient's muscles are in a condition of complete voluntary relaxation, and when there is no perceptible obstacle to movement.

The laws which govern the direction in which manipulation is to be given are, of course, identical in the two cases. Only one word is necessary. When applying tension the greatest care should be taken not to let the grasp slip. The grip, in other words, must be very firm. The manipulation must be performed smoothly and with even pressure; there must be no aimless waggling to and fro and no spasmodic jerking. The pressure must be released as smoothly and gradually as it was applied.

In order that the patient may be in the most favourable attitude to contract his antagonists, the position in which he is placed in the massage-room as a preliminary to the administration of forced movement is not always identical with that chosen when the manipulation is to be performed under a general anæsthetic.

Thus, for instance, flexion of the knee is often best performed with the patient on his face, and the foot is often manipulated to best advantage while the leg rests on the masseur's lap. Shoulder and elbow are best treated absolutely recumbent.

AFTER-TREATMENT.

The after-treatment of cases that have been treated by mobilisation under an anæsthetic varies with the condition found. Restoration of function being the objective, active movement must be prescribed at the earliest possible moment. This should be within a few hours of the manipulation, and, if possible, within a few minutes. But all manipulations must be regarded in the light of the infliction of injury. If pathological tissue has been broken down—the picture is far different if it has been severely stretched only—the injury, as a rule, is trivial, and we can proceed apace. If pathological or normal structures have been stretched, reaction varies with the amount of damage done. It may only be very slight. On the other hand, if manipulation has been too vigorous, or if it has been unskilfully performed, then the structures around the joint—ligaments and tendons—and the muscles that control the movements of the joint have suffered injury, which may amount only to slight strain, to sprains of all degrees of severity, until finally we come to the by no means unknown catastrophes, torn muscles, tendons or ligaments, or even dislocation and fracture. Obviously treatment must vary with the extent of the damage done, and this can only be gauged by reaction. To expect a masseur to put a joint through its full range of movement merely because this has been done under anæsthesia is utterly preposterous, unless, indeed, we have the certainty that no strain has been placed on any non-pathological tissue. So rarely, however, is this the case that the full range of movement is rarely attainable for two or three days unless there was little or no previous limitation. Each case must be treated individually, and the laws which govern all treatment of recent injury must be respected.

DENTAL SEPSIS IN CHILDREN:

ITS CONSEQUENCES AND TREATMENT.*

BY F. ST. J. STEADMAN, D.P.H., L.R.C.P., M.R.C.S., L.D.S.

AMONG the many lessons which the war of the past five years has brought home to us is the important fact that the physique of our race is by no means as good as it ought to be; indeed, the Prime Minister, in a speech last year, stated that the physical examination of recruits had revealed an appalling state of affairs. Among cotton weavers, for example, only 19·6 per cent. of those examined were placed in Grade 1. In one day's batch of 59 men, only 3 were found to be in a fairly good physical condition. A struggle for our very existence as a nation, such as that through which we have just passed, brings home to us the gravity of this matter in a way that nothing else can.

The causes of this deterioration of our national physique are doubtless many. Civilisation entails the performance of a large amount of work in a vitiated atmosphere; while diseases such as tuberculosis, rheumatism, and valvular disease of the heart are rife. It is the duty of the medical profession (in which I, of course, include the dental) to determine as accurately as possible where we are at fault, and to strive against those conditions which impair the health and strength of the community.

The Medical Society of London has commenced this investigation, but judging from a report of a meeting held on Nov. 25th, 1918, in which the causes of rejection were classified and in which there is no mention made of dental disease, the Society is, once again, overlooking the commonest cause of deteriorated physique. When we realise the prevalence of dental disease in all classes it is strange that, even to-day, the medical profession does not appreciate its vital effect on the physique of our race. Dr. J. D. Comrie states that of 10,000 recruits 928 had artificial teeth, while another 1120 had lost half their teeth at least, and that a septic condition of the teeth with deposit of tartar and gingivitis was frequently associated with dyspepsia and invariably with a deteriorated physique.[1]

I think it will be generally admitted that chronic disease in childhood, the effects of which spread over a period of years, must have a profound influence upon mental and physical growth. Of all chronic diseases of this character, dental disease is by far the most common, as something like 80 per cent. of the children of the race are suffering from dental diseases.

I assume that we are all agreed upon the tremendous importance to the child of a perfect dental arch; that the best way to combat dental diseases is by prevention with the necessary prophylactic measures, a clean mouth in, and the proper feeding of, the pregnant mother, breast-feeding in infancy, the establishment of proper nasal breathing, and proper diet—a diet requiring efficient mastication. Further, that we are agreed upon the immense importance of early and constant dental supervision, so that caries can be treated early, either by silver nitrate or, when the cavities are shallow and do not involve the pulp, by suitable fillings; that it is generally a reflection upon the parents, and more especially upon the dental adviser (provided that his inspections have been sufficiently frequent) if a pulp is allowed to become infected or if treatment is delayed until infection of the pulp has occurred. I want to emphasise these points because it has been said that I do not believe in the conservative treatment of teeth in children. I want to make it quite clear that I do all I can in my practice to conserve the deciduous as carefully as I do the permanent teeth.

I propose in this paper to deal with the effect of marked dental sepsis on the health of children, and with the treatment of those all too common cases in which the prophylactic and remedial measures just enumerated have not been carried out, and the child has been brought to us with advanced caries in one or many teeth. Moreover, I want it to be clearly understood that I have in my mind the treatment of this sepsis from a broad national point of view. I am not concerned so much with the treatment of the children of the rich, for although, of course, the fundamental principles are the same for both, it is clear that in dental diseases, like all other diseases, there is often one means for the rich and another for the poor. The advice given to a wealthy, leisured mother (who is aided by nurses whose sole work is to look after her children) may be different from the advice given to the busy working-class mother, whose day's work begins when she gets up in the morning and ends only when she goes to bed at night. It is as futile to tell such a mother with five or six children that she must see that they clean their teeth carefully after every meal with a toothbrush, aided by floss silk, as it is for a physician to order the bread-winner of a family, earning £3 a week and suffering from phthisis, to take a 12 months' sea voyage.

The Effects of Dental Sepsis upon Children.

The effects of dental sepsis upon children can be considered under two main headings: (A) General; (B) Local.

(A) *General.*—It was during my work at the Belgrave Hospital for Children some years ago that I first began to appreciate the profound effect that dental sepsis may have upon the general health of the sufferers. When I first took up this work I thought that the pale-faced, tired-looking, underweighted and mentally inefficient children whom I saw were the result of semi-starvation, due to poverty. One day, however, I happened to notice a mother who had brought such a child to me and who had with her another of her children, who had not this half-starved appearance but who looked healthy and well. Thinking that this marked difference in appearance might be due to favouritism on the part of the mother, I questioned her closely, but found that her treatment with regard to the food of both children was the same. I then looked at the mouths of the two children. My little patient was suffering from advanced caries, with its consequent gingivitis, while the mouth of the other was healthy. I removed the septic teeth from the one, and a few months later it was as healthy in appearance as the other. This very common and ordinary case illustrates very well the effect dental sepsis frequently has upon children. Mental and physical growth is retarded. Pale-faced and anæmic, their eyes have not the normal lustre of healthy children, and they have a tired and sleepy look about them.

Sir J. F. Colyer was, I think, the first to weigh these children before and after treatment, and in a paper read before the Manchester Odontological

* Read before the Odontological Section of the Royal Society of Medicine, Jan. 26th, 1920.

[1] THE LANCET, Nov. 29th, 1919.

Society on Dec. 6th, 1910, gave the weights of some of the cases he had treated for sepsis. He showed that there is frequently a marked increase in weight, too great to be accounted for by the normal increase of growth. He gave details of the following four cases:—

M. L., aged 4 years 6 months. When first seen was suffering from gastro-intestinal trouble. Teeth removed $\frac{DCBA|ABCD}{ED\ |\ DE}$. In this case the $\frac{EE}{}$ were not carious and were retained until the $\frac{6|6}{}$ erupted. This patient lost her gastro-intestinal trouble, and between June 8th and Oct. 2nd, 1909, increased in weight from 2 st. 4 lb. to 2 st. 8 lb. The normal weight should have been 2 st. 8 lb., and the normal increase in four months 1½ lb. This patient increased 4 lb.

W. G., aged 7 years 4 months. Stated always to have indigestion. Teeth removed $\frac{6EDC|CDE6}{6EDC|CDE6}$. The teeth were removed on Dec. 6th, 1909, the patient weighing 3 st. 2½ lb. On Feb. 7th the weight had increased to 3 st. 5 lb. and all symptoms of gastro-intestinal trouble had ceased. The average weight of this boy should have been about 3 st. 9½ lb., and the increase in two months a little under 1 lb. The weight, however, increased in two months 2½ lb.

A. R., aged 6 years 7 months. Complained of constant feverish attacks. Teeth removed $\frac{EDBA|ABDE}{ED\ |\ DE}$. Between December, 1909, and Oct. 23rd, 1910, the weight had increased from 3 st. 5 lb. to 3 st. 10 lb. The feverish attacks had ceased and the child was sleeping and eating well. This patient was about average weight, and the increase in weight about normal.

The rapid increase in weight following extraction is at times very marked.

For example, in his fourth case a boy, aged 10 years 2 months, it was found advisable to remove $\frac{EDC|CDE}{EC\ |\ CDE}$. Between June and October this boy increased from 4 st. 6 lb. to 4 st. 11 lb. The normal weight should have been about 4 st. 11½ lb., and the average increase in four months about 2 lb. This child in the period increased 5 lb.

I have weighed a considerable number of children, and have been able amply to confirm Sir James Colyer's results. As he points out, the increase in weight is not always shown. In a few cases there may even be a slight decline. This is frequently traceable to sepsis in other parts—for example, tonsils or nasopharynx.

One of the chief ways by which dental sepsis in children produces this loss of mental and physical growth is by the reduction of sleep. A careful investigation of the history of these cases will frequently disclose that for months and months the child has not slept well. Its nights have been disturbed by pain. This important symptom has to be looked for, as children do not as a rule complain of it. When one considers the effect of a series of bad nights upon oneself, the importance to the child of this lack of sleep can be dimly realised. I wish to emphasise this point with all the power that I can. Its importance cannot be exaggerated.

Some years ago the father of one of my young patients at the Belgrave Hospital for Children took the trouble to find out where I lived to visit me for the purpose of thanking me for my treatment of his son, aged 9. Some 14 months before I had removed his 12 molar teeth, $\frac{6ED|DE6}{6ED|DE6}$. The father told me that up to that time the boy had always been delicate and ailing. He had had many restless nights from toothache and had constantly needed medical care. He was small, under weight, pale-faced, and very backward at school. He had "suffered terribly." A few days after the operation he began to change rapidly. He has now rosy cheeks, looks well, has regained his normal weight, has not once been ill, and has made rapid strides at school. It seemed, as his father said, as though a millstone had been removed from about his neck.

Gastro-intestinal Disorders following on Oral Sepsis.

A common result of oral sepsis in children is gastro-intestinal disorders, as evidenced by gastric and abdominal pain, diarrhœa of an offensive character, with much undigested food in the motions, marked wasting, fretfulness, night-terrors, loss of appetite, sleeplessness, and pallor of the face. In treating a case such as this, it would appear to be a common-sense thing to do first to inspect the mouth and to remove any possible source of infection in it before proceeding to treat the stomach; yet many medical practitioners still neglect to do this. In one case of this kind which came under my care, a child, aged 7, had been treated for no less than 14 months by her doctor, who had made only a very cursory oral examination. Indeed, as the child was frequently awake at night with toothache the mother had more than once asked him whether he thought that the condition might be due to the teeth, and whether he thought it advisable to have the teeth treated, but the doctor had replied that the teeth must on no account be removed, because that would injure the permanent ones, and, moreover, would prevent mastication! At last the mother, finding that the doctor's medicines did no good, determined to have the teeth attended to. On examination I found advanced caries with exposure of nearly all the pulps in $\frac{EDC|CDE}{ED\ |\ DE}$ with definite chronic abscesses over $\frac{D|}{E\ |\ D}$. Three or four weeks after the removal of these teeth the child was practically well.

This gastro-intestinal condition is due to sepsis and not to lack of mastication, as proved by the fact that the cases frequently get well very soon after extraction of the teeth, and almost before the gums have healed—that is to say, while the gums are still too tender to allow of mastication upon the teeth that remain. This is borne out, I think, by the most interesting observations of Dr. H. Waller upon dental disease in nursing women. He shows that in many instances in which a breast-fed baby ceases to thrive while still at the breast, the trouble can be traced to sepsis in the mouth of the mother. He gives details accompanied by charts of three cases selected from nearly 200, demonstrating the marked gain in weight of the infants after the extraction of septic maternal teeth.[2]

In these cases it is clear, I think, that the digestive apparatus of the child is unchanged; that the improved health has been brought about by the removal of sepsis in its food. Similarly, as Dr. Sim Wallace points out, anæmia of other than dental origin is liable to be aggravated by the chronic toxæmia and septic absorption which may be associated with dental sepsis.[3] Other chronic diseases, such as tuberculosis, cannot but be prejudicially affected by an insanitary state of the mouth.[4] Typhoid and scarlet fever and other zymotic diseases have been shown by Hunter to be much more dangerous when dental sepsis is present.[4] Further, sepsis from the mouth may be absorbed into the blood stream, giving rise to such diseases as septicæmia or endocarditis.

[2] THE LANCET, 1916, ii., 785.
[3] Dental Diseases and Public Health, p. 18.
[4] Oral Sepsis as a Cause of Disease in Relation to General Medicine, Brit. Med. Jour., 1904, ii., p. 1358.

(B) *Local.*—Under this heading I include the adjacent parts to which infection sometimes spreads by continuity of tissue. Pharyngitis, tonsilllitis, otitis media, and—much more rarely—meningitis and such-like troubles. Infection may pass down the lymphatics to the submaxillary and cervical glands. Some hold that glands are so commonly enlarged in children that it is not worth while even examining for them. In my opinion, such teaching is absolutely wrong. I think (although I know that I am on controversial ground) that normally the submaxillary and cervical glands are not palpable in children; that if they are, there is sepsis somewhere. Carious teeth frequently produce enlarged glands, as proved by the fact that these glands disappear after the removal of the teeth. At the same time, I am well aware that we see enlarged cervical glands in children with perfectly clean mouths.

Enlarged Glands in Children.

We dental surgeons are apt to forget that these glands drain a very large area apart from the teeth and oral mucosa. For instance, the tonsils, the nasopharynx, the orbits, the skin of the face, the anterior part of the scalp, &c. We also commonly see children with very septic teeth in which the glands are apparently not affected, but as Mr. G. Morgan points out, this freedom from injury to the gland is often more apparent than real:—

"A gland constantly irritated by micro-organisms from a carious tooth is potentially weaker; it is more vulnerable than a gland not so irritated. This greater susceptibility to injury is shown by the effect of strain on such glands. I think we may take it for granted that a gland becoming tender and remaining for some weeks enlarged from a simple strain is not a healthy gland. Its resisting power has been lowered by having to deal with micro-organisms, perhaps in no great amount, and I think one may say of low virulence, but spread over long periods. A girl, aged 8, coming of a very healthy family and living in a good house, slipped whilst using dumb-bells and strained the muscle of her neck. The next day there were two tender glands a little in front of the right angle of the jaw. The six-year-old lower molar on this side was badly decayed and had been so for a year, yet until the strain there was no sign of enlarged or tender glands. After the strain the glands remained enlarged for several months, and one finally became tuberculous. Glands in the groin will sometimes enlarge from the strain of football, but careful examination of the area of drainage and going into past history will nearly always prove that the glands were not in their normal state at the time of injury. Measles and whooping-cough often play the same rôle as strain—i.e., glands injured by carious teeth, and yet not visibly showing any change, will enlarge more quickly and remain enlarged longer than glands not so injured. I could supplement these cases by others, proving that strain alone does not cause inflammatory enlargement of healthy glands."[5]

It should be remembered that a very slight septic focus in children will often lead to enlarged glands, and if glands are palpable we should endeavour to find the cause. It is true that the glands often rapidly diminish in size after the removal of septic teeth, but they do not always quite disappear. They appear to be fibrosed, and years later, at the age of puberty, they occasionally break out again, and examination may show them to be tubercular. Occasionally these infected glands break down, and the infection is carried to other parts of the body, giving rise, possibly, to tubercular lesions in the bones, or it is even possible that tubercular meningitis may be set up. Mr. J. G. Turner has shown that sepsis in the deciduous teeth not uncommonly leads to damage of the permanent teeth beneath them, as shown by hypoplasia and some of those deformities which have been classed under the term dilaceration, commonest among the premolars and fairly common amongst the incisors. I have examined a number of radiographs of the bone round septic teeth to ascertain whether any rarefying osteitis is to be observed, especially in those cases in which the pulps have died under fillings. I am not able to make a definite statement upon this at present, but hope to bring this point up again on a future occasion.

Lastly, the carious tender teeth by disuse bring about a gingivitis which may spread eventually to the periodontal membrane of the permanent teeth, with all its consequent ill-effects upon the health of the individual. Many of our citizens, owing to neglect of their teeth in childhood, have had dirty septic mouths all their lives, so that we need scarcely wonder at their poor physique.

Such, then, is a by no means complete picture of the possible consequences of sepsis in children and upon the national physique. No doubt one frequently sees children with exceedingly septic mouths apparently in robust health. I have reason to suspect, however, that in some of these cases, at any rate, this robust health is more apparent than real. Then arises the interesting question, What percentage of children with marked sepsis in their mouths have their general health thereby affected? It is a question which I fear in the present state of our knowledge we cannot answer, but one worth trying to solve in the future.

I have treated between 7000 and 8000 children in the way that I am about to describe, but these have been mostly hospital patients; consequently I have only been able to follow up a comparatively small number. Of these I can definitely state that a considerable percentage have shown marked improvement in their general health, and none whose health has been adversely affected by the removal of their septic teeth. The illustrative cases I am giving are merely examples of very many others of the same kind which have come within my experience.

Would that I had the power of a Raemaker in depicting these things graphically! I would draw a picture showing the enormous number of children of our race wrapped in a pall or dense fog, the fog of dental sepsis, retarding their mental and physical development. Drastic treatment of this sepsis is like snatching away the pall or lifting the fog. Normal weight is regained, their eyes once more shine brightly, and the palest cheeks become rosy. These children have been given a chance to grow.

The Treatment of Dental Sepsis in Children.

All deciduous teeth in which the decay is sufficiently advanced to infect the pulp I extract, and generally their antagonists also. I only fill teeth when I feel sure that the pulp is not affected. This condemns at once the majority of decayed deciduous teeth, because the pulps of these are relatively larger than the permanent teeth, so that a comparatively small cavity is sufficient to infect the pulp. By infected pulp I do not necessarily mean an exposed pulp. Many pulps are infected long before the actual exposure has occurred.

I treat the permanent molar teeth in the same way as the deciduous teeth if the roots are incomplete

[5] Lymph Glands in Relation to the Teeth and Gums, British Dental Journal, August, 1903, p. 522.

[6] Injury to the Teeth of Succession by Abscess of the Temporary Teeth, Brit. Dent. Journ., 1909, p. 1235.

at the time of the pulp infection. I know of no way of dealings with infected pulp in children which I regard as sound. The treatment recommended by many practitioners of sterilising and capping the pulp is, in my judgment, dangerous, as in the majority of cases so treated the pulp eventually suppurates and dies under the filling, and the teeth remain tender and uncomfortable, so that the child's confidence in them is not restored and he does not use them for the purpose of mastication; frequently they ache and he remains with his disturbed nights. The following case which came under my care illustrates these points:—

The patient was a boy, aged 5, and was brought to me by his mother on account of pain in his teeth, which caused him to have restless nights. On examination I found he had no less than 11 amalgam fillings inserted into his deciduous molars. Three of these teeth $\frac{E}{E|D}$ were obviously dead and tender, and pus could be squeezed out from the pockets around them. The gums all round the mouth were inflamed and dirty. It was clear that the child had not used these teeth for the purpose of mastication for some time. The submaxillary lymphatic glands on either side were swollen and tender, as also were the cervical glands on the left side. The mother said the child never seemed well, was always irritable and cried himself to sleep when put to bed, and frequently woke during the night, at such times complaining of pain in his teeth; that he had not had a good night's rest for months, and that he did not care for his food and did not eat enough. The child's general appearance amply bore out his mother's statements. He was small for his age, pale-faced, and his eyes lacked the brightness and intelligence of the normal child. The dentist who filled these teeth had told the mother that nothing further could be done until the child was aged 10 or 11, when these teeth would be shed, and that it was absolutely necessary to retain them for the purpose of mastication. A second dentist had confirmed this opinion. In the face of these opinions of two of my fellow practitioners, I had some difficulty in getting the parents' consent to the immediate extraction of the deciduous molars. Fortunately I was supported on this occasion by the family doctor (more often than not, I regret to record that I have found in him a strenuous opponent). The operation was performed on March 8th, 1913. The effect was startling. On that night and each following night the child slept well; there was no crying out and no restlessness whatever. On April 22nd the glands were only just palpable, and were no longer tender, and the beneficial effect of the good nights on the child was obvious. The pallor of his cheeks and the sleepy, tired look had vanished. The mother said that the improvement in health "seemed marvellous" and the child was "altogether brighter in himself." He was eating well and seemed always to be hungry. This child was not weighed, but it was apparent that he was steadily putting on weight.

The Effect of Extensive Extraction in the Area of Mastication.

The argument against extensive extraction in children, that mastication is lost, is futile. I cannot understand how it is that medical and dental practitioners who use this argument can fail to see for themselves that mastication is already lost. No child will masticate on tender teeth and exposed pulps; but one may actually take up the other line of argument and say that by the removal of tender teeth the area of mastication is increased. An exposed pulp in a deciduous molar means that the child will not masticate on that side of the mouth, so that the important six-year-old molars behind them are not functional; remove the tender tooth and these teeth will be restored to usefulness.

Experience shows that the child regains its normal weight and health after extraction of all septic molars. In other words, experience shows that it is better for the child, if food has to be bolted, that the food be as clean and as uncontaminated by pathogenic organisms as possible. Here, in passing, I would like to point out that if it has been decided to extract the six-year-old molars it is best to do so early, when the child is about 10 years old, and not wait until the 12-year-old molars have erupted, so as to allow these latter teeth to come forward.

If you take 30 children and arrange them in a group, and 10 of these children have all of their teeth present and their teeth and mouths perfectly healthy, and 10 have had most or all of their teeth removed but their mouths otherwise healthy, while the remaining 10 have septic teeth and inflamed gums, it will be easy for the trained eye—aided, if you like, by the weighing machine—to pick out these last 10 children, but it will not be possible to separate the remaining 20.

Effect of Extraction on Development of the Jaws and the Permanent Molars.

Another argument against the extraction of teeth is that it prevents the proper growth and development of the jaws. If the extraction of teeth adversely influences the growth of the jaws it is clear that if several teeth are removed on one side and not on the other, the jaws on the one side from which these teeth have been extracted will show a deficient growth; whereas, the side from which the teeth had not been removed will grow normally, giving the whole face a lop-sided appearance. Experience shows that save in exceptional cases nothing of the kind happens; on the contrary, the jaws still reach their normal development on both sides, in spite of the loss of the teeth on the one side. Or again, if we extract teeth from the upper jaw and not from the lower, it has been said that the upper jaw will not grow properly but the lower will, so that we shall have (brought about an "inferior protrusion," or vice versa; but nothing of the kind happens, showing that the normal growth of the upper jaw has apparently not been affected by the extraction of the teeth.

A more important argument which requires attention is that the early extraction of deciduous teeth will lead to the forward movement of the six-year-old molars, thus causing crowding and irregularities of the arch later on. If the teeth are extracted before the permanent molars have occluded, there is no doubt that this will take place, but, provided the patient comes frequently for dental inspection, at the right moment one of the permanent teeth in each corner of the mouth can be sacrificed. These teeth may be either the four six-year-old molars or the four premolars, according to circumstances. If the extractions take place after the permanent molars have occluded, there will be very little forward movement.

Importance of Removing Antagonists.

I have said that I remove, as a general rule, not only the carious teeth, but also the antagonists. The importance of this was brought home to me by a demonstration by Colyer at one of the "At Homes" of the Royal Dental Hospital some years ago. A young child who had one lower deciduous molar tooth missing but all the rest of the teeth present and healthy, was given a meal of soft food (bread-and-butter) and was

then given an apple. The eating of the apple mechanically cleansed away all the soft food which remained around the teeth after the meal of bread-and-butter, except that around the tooth which was opposite the place where the tooth was missing. Around this tooth was a soft film of carbohydrate food, and when this was scraped off, a little ring of inflamed gum all around the tooth was seen, due to the frequent lodgment of food. This, to my mind, clearly demonstrates the importance of removing this functionless tooth, for if left it is liable, owing to the tenderness of the gum around it, to prevent mastication and to force the child into the pernicious habit of unilateral mastication. In those cases, however, in which the four lower deciduous molars and the first upper are carious but not the second upper deciduous molars, I leave the latter (in children aged under 6) in position, following the teaching of Colyer, until the permanent molars have erupted and occluded.

I think we do not realise sufficiently the importance of preventing unilateral mastication. It means that on the unused side we shall get a marked gingivitis, and more important still, this habit is liable to become permanent, so that later on, when the permanent teeth have erupted, they quickly become septic also. I am convinced that many cases of periodontal disease can be traced back to tender teeth in the child.

The Expediency of Free Extraction.

There is another argument in favour of extraction which, however, I bring forward with some hesitation—that of expediency. One would, perhaps, hardly be justified in acting upon expediency alone were it not supported by the other and more powerful arguments that I have already given.

Of the 7,000,000 or so children in this country, something approaching 6,000,000 require dental aid. I think if I allow, on an average, one hour's work for each child to do what is required, I shall not be accused of overstating the case. If this work is carried on at the rate of five and a half hours a days, it will take one man nearly 3000 years to complete. This rough calculation will show that we have nothing like enough dental surgeons to get through the work. On the other hand, if we extract all teeth with infected pulps, a tremendous amount of time will have been saved. It is difficult to estimate the beneficial effect this work would have upon the health of the children, and consequently upon the physique of the nation; although it is true we should have a greater number of crowded arches to deal with. A result cheap indeed at the price. Of course, there is no doubt that as the years go on this huge mass of dental work in children will gradually lessen as the teaching of prevention becomes diffused in the schools.

It takes a considerable amount of courage to condemn a large number of teeth in a child. This necessary courage can only be acquired by observing, recording, and pondering over the evil consequences of leaving these septic teeth. A proportion of the dental profession at the present day appears to lack this courage, or have not yet realised sufficiently the great harm they are doing to their patients by leaving septic teeth. Four times during the past six months parents have brought children to me simply and solely because they have heard that I am willing to treat children. One case was a boy, aged 5, in which every tooth in the child's mouth was carious almost down to the gum margin, causing a septic gingivitis and profoundly affecting his health. The father told me that he had taken the child to two dentists and a doctor, each of whom said that nothing could be done. The father told me that common sense convinced him that something could and ought to be done. Removal of all the deciduous teeth has had a very marked beneficial effect upon this boy's health, but will no doubt lead to crowding later on and the sacrifice of four permanent teeth. I have explained this to the parents, but they do not seem to think that this is worth considering in face of the immense improvement in the child's general health, an attitude which I cordially endorse. In another case a little boy was brought to me with a large swelling in connexion with his left lower deciduous molar. A doctor had treated this for eight weeks, stating that the tooth, being a temporary one, must on no account be removed. During this time the swelling on the jaw had become hard and brawny; pus had burst through the skin, and when I came to remove the tooth I found a large piece of necrosed bone at the bottom of the sinus. Had the tooth been removed eight weeks sooner the patient would have been spared permanent disfigurement.

The Treatment of Children.

It is true that a considerable number of dentists do not wish to treat children. It is not given to everyone to have the patience and tact that is necessary to deal with young children, but if a practitioner has not these qualities he should manfully recognise the fact and send children to those who will undertake their treatment.

The ignorance of a small but harmful minority of medical practitioners concerning dental matters is, without exaggeration, nearly as great as that of the general public. These men cannot yet appreciate their own ignorance and sometimes give advice on dental matters, which is not only wrong but often positively extremely harmful. Progress is being made, but it is slow. In the war against dental disease and its train of consequences, in the effort to snatch off the pall and clear away the fog of sepsis which envelops our children, I have sometimes thought that these medical practitioners are like evil spirits, doing there utmost to prevent the clearance of that fog. On more than one occasion when I have urged the removal of abscessed teeth which are keeping their possessor awake night after night with pain, besides causing severe general ill-health, the medical adviser has stepped in and said that nothing must be done to the teeth until the child's health has improved. It is difficult to follow what is in the mind of the giver of such advice. What would one say if, when his house was burning, the firemen told him that they must wait until the heat had cooled down a bit before they commenced to put it out?

Lastly, I would like to emphasise one more point, which I consider very important—namely, that if extensive extraction has been decided upon, it should be carried out at one time under one general anæsthetic such as ethyl chloride. In this way we put much less strain upon the nerves of the little patients. In one case which came under my observation a dentist had condemned 12 septic teeth and proceeded to remove them, one at a time, under gas. After five teeth had been removed in this way the child's nerves had been shattered. I can see no great objection and very little risk in removing all that are necessary at one operation.

PAUCHET'S METHOD OF GASTRECTOMY.

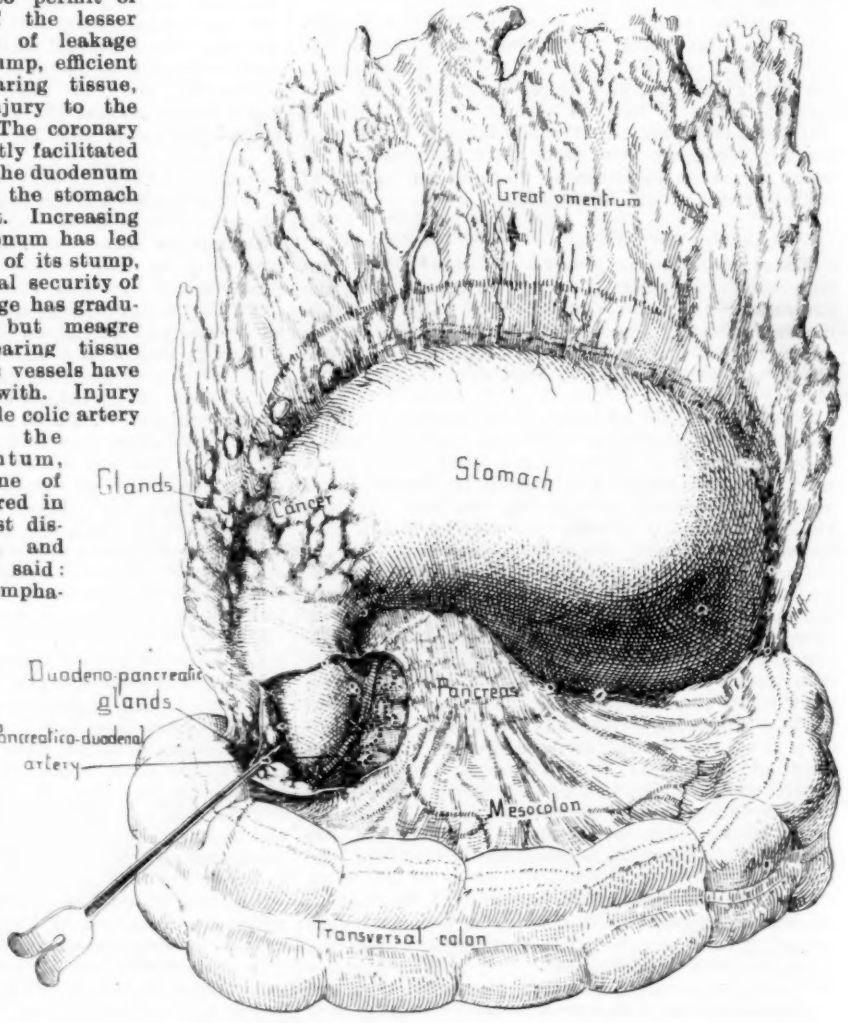
BY IAN MACDONALD, M.D. EDIN., M.D. PARIS.

IN cancer of the stomach competent surgeons have insisted that the radical operation should always when possible be performed. In their expert hands wide pylorectomy shows a steadily diminishing mortality and in many cases offers a reasonable prospect of cure. Should the operation prove only palliative the comfort of the patient is greater than if left with his tumour after a simple gastro-enterostomy. If, then, gastrectomy can be simplified, it will be more often performed, and the easy short-circuiting operation will be reserved for the limited number of cases in which it is useful. The principal technical difficulties of resection in cancer are high ligation of the coronary artery to permit of adequate removal of the lesser curvature, prevention of leakage from the duodenal stump, efficient removal of gland-bearing tissue, and avoidance of injury to the middle colic artery. The coronary ligature has been greatly facilitated by leaving it till after the duodenum has been divided and the stomach swung over to the left. Increasing respect for the duodenum has led to very careful suture of its stump, and with the additional security of an omental flap, leakage has gradually become rarer; but meagre removal of gland-bearing tissue and danger to the colic vessels have still to be reckoned with. Injury or ligature of the middle colic artery during division of the gastro-colic omentum, resulting in gangrene of the colon, has occurred in the hands of the most distinguished surgeons, and as one of them has said: "It is impossible to emphasise too strongly the need for care and caution in this matter." The initial step in Pauchet's method of gastrectomy ensures the integrity of this vessel and provides fully for removal of infected gland tissue. The steps of his operation are as follows:—

Technique of Pauchet's Operation.

1. *Omental colic separation.*—Pauchet applies the technique used in France by Lardennois and Okinczyc as the first stage in colectomy to the surgery of the stomach. The great omentum and transverse colon are lifted out of the abdomen through a median incision above the umbilicus. The line of attachment of the omentum to the colon is shown by a series of most delicate vertical pleatings. The assistant, lifting up the great omentum with his right hand, on the flat of which rests the spread-out omentum, with the left gently pulls the colon downwards. The operator, holding the omentum in his left hand, passes the point of a very sharp knife along the pleated attachment, beginning this fine bloodless dissection well over towards the left of the patient. The cleavage area soon appears and is enlarged within a compress. Commencing on the colon, it continues along the mesocolon, through an avascular space bounded below by the transverse mesocolon, easier to define as the separation goes farther back to where the mesocolon is implanted on the posterior abdominal wall. The omentum can finally be thrown upwards with the stomach, leaving the posterior surface of the stomach, the pancreas, and the superior surface

FIG. 1.



The illustrations were prepared in France.

The lesser sac has been opened through the omental colic separation to explore the posterior surface of the stomach and duodenum. The great omentum is thrown upwards, and its avascular attachment to the anterior surface of the colon has been freed by a knife; this dissection was begun as far as possible towards the left. The posterior relations of the stomach are fully displayed. The tumour and glands are separated from the transverse mesocolon and pancreas; the pancreatico-duodenal artery is defined and ligatured. This stage is performed by gauze dissection, the director, or bistoury, includes also the freeing of the middle colic vessels in the transverse mesocolon and separation of the glands, all of which should remain attached to the stomach. Dotted lines on the pancreas show the situation of the glands removed.

of the transverse mesocolon in full view. The transverse colon is replaced in the abdomen and the transverse mesocolon, pushed down with it, carries the middle colic artery out of danger.

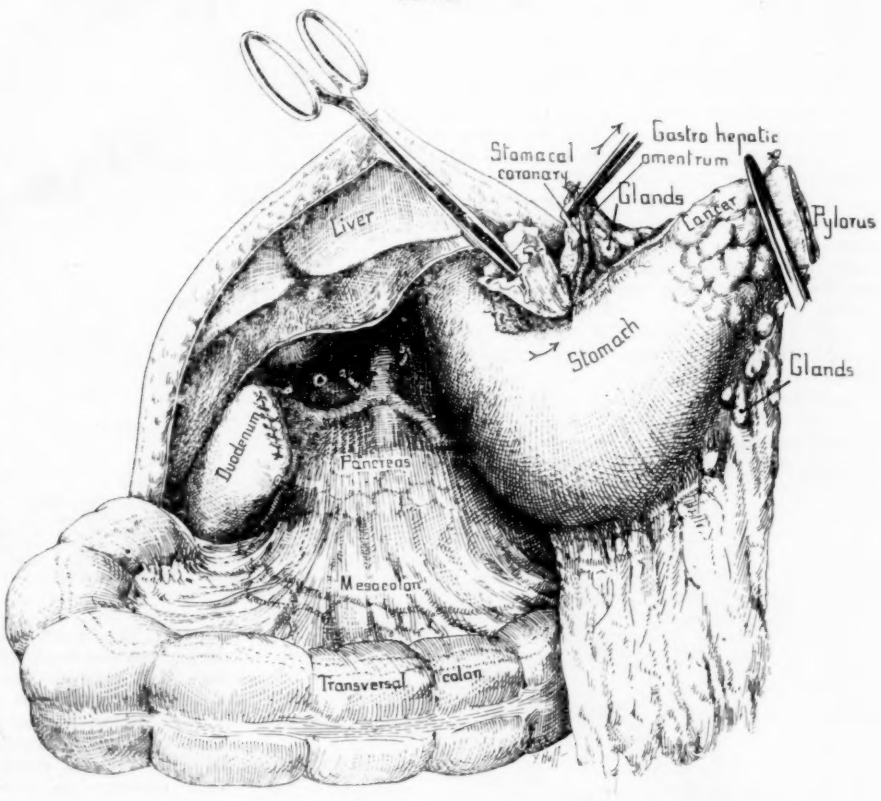
2. *Freeing of the stomach, the tumour, and glands.*[1]—As the omental colic separation continues the stomach is carefully detached from the pancreas, using the knife or a compress to strip upwards any glands now forming one mass with the stomach. The line of cleavage, having freed the stomach from the pancreas, is then prolonged well towards the right, separating the omental layer with care from the underlying transverse mesocolon as the duodenal region is reached. Here a director is passed under the stretched-out omental edge, leading the cleavage line under the serous attachment of the duodenum, which is thus mobilised, freed, and pushed upwards. During this last step the right gastro-epiploic artery and pancreatico-duodenal artery lying in the angle between the pancreas and duodenum can be secured. With the mobilisation of the serous layers over the duodenum the peripyloric and duodeno-pancreatic glands are freed, and carried upwards towards the block of tissues formed by the stomach and tumour, which is grasped in the operator's left hand. Still using the director and knife, the already cleared space on the antero-external aspect of the duodenum is continued round posteriorly, the intestine being cleared as "if it were an artery."

3. *Section of the duodenum and ligature of the coronary artery.*—The denuded duodenum, grasped in a crushing clamp and divided, is closed by a parallel suture whose loops pass over the clamp. Some extra sutures are placed over the first line, and an omental flap adds further security to the stump. The pyloric artery is ligated and the gastro-hepatic omentum divided as near the liver as possible. The stomach is then swung over to the left, and the assistant retracting the liver with a Doyen's retractor, the operator places the coronary ligature as near the origin of the vessel as possible.

4. *Clearing of the lesser curvature.*—Pauchet performs this important step by placing a Kocher's forceps on the coronary pedicle a short distance below the ligature. With a sharp knife he divides the arterial pedicle close to the forceps, the incision passing right on to the serous coat of the lesser curvature. Traction on the forceps stretches upwards the part of gastro-hepatic omentum still attached to the stomach with its contained glands. With the blade of the knife on the flat, by a gentle scraping movement from above downwards, the serous coat, vessels, and glands are detached from the lesser curvature, traction on the forceps aiding their separation. The stripping of the curvature ceases where it is decided to cut the stomach across.

5. *Removal of the stomach and gastro-enterostomy.*—A crushing clamp, de Martel's or Payr's, is placed across the stomach, and the diseased portion distal to the clamp is cut away by the thermo-cautery. A continuous linen suture, its loops passing over the clamp, is rapidly placed along the gastric section, the clamp is loosened, and the suture drawn tight in the same way as the duodenal suture, the stomach being thus closed by a purse-string suture. Probably some surgeons would hesitate to confide the gastric section to the infolding suture over the clamp, and would prefer doubly to suture the stomach after removal of the crushing clamp. Gastro-enterostomy is then performed on the posterior or anterior surface of the stomach with a short loop of jejunum brought up through the mesocolon. If the gastric stump is very small Pauchet sometimes employs the Murphy button for the anastomosis, or unites the jejunal loop laterally to the section of the stomach after the Polya method.

FIG. 2.



Clearing the lesser curvature of its glands. The coronary artery has been ligatured and divided by a knife between the ligature and a Kocher's forceps which draws the vascular pedicle towards the left. The remainder of the gastro-hepatic omentum is divided by a knife, and the incision passes on to the muscular coat of the stomach. The lesser curvature is cleared by gauze.

Advantages of Omental Colic Separation in Gastric Operations.

Pauchet holds that omental colic separation, the first stage of this procedure, should be systematically used in many gastric operations, as it simplifies them considerably. He sums up its advantages as follows.

[1] Traitement Chirurgical des Maladès de l'Estomac. Atlas de 50 pp. et 90 figures. 1919. Paris: Maloine éditeur, 25, rue de l'Ecole de Médecine. Par Victor Pauchet.

1. The recognition of ulcers or other lesions which may pass unnoticed in mere superficial examination.

2. The possibility of dissecting with the greatest precision ulcers and cancers adherent to the pancreas or transverse mesocolon.

3. In cases of cancer, the greater facility in freeing the chain of glands which lie along the terminal portion of the greater curvature, the lower aspect of the pylorus, and the first portion of the duodenum.

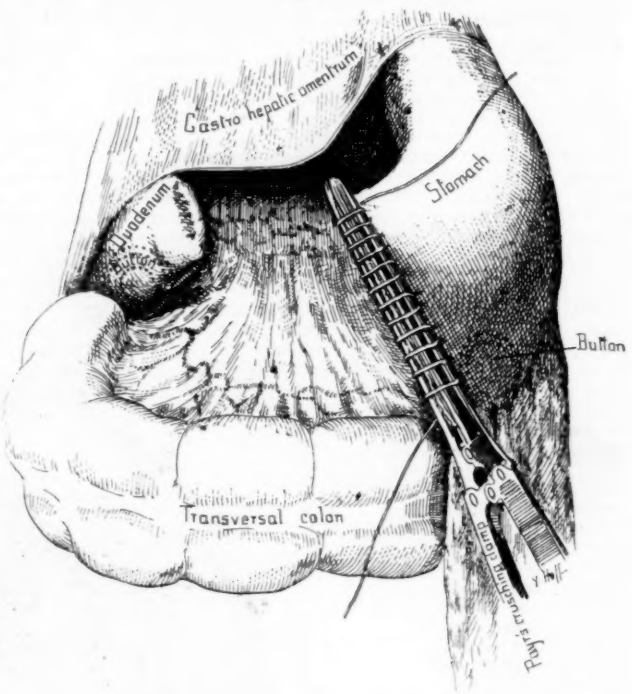
4. Further, in cases where the surgeon may decide definitely to resect the mesocolon if invaded also by the growth, the most simple and rapid method of removing the zone of the transverse colon irremediably deprived of its blood-supply by the ligature of the mesocolic vessels, is to extend the omental colic separation round the hepatic angle of the colon as in "mobilisation" of the colon, the usual procedure in removal of the cæcum and ascending colon.

The terminal ileum is then anastomosed to the transverse colon where its vascular supply is assured.

Gastrectomy performed by this method can be rapidly executed, and in cases of non-adherent pyloric tumours becomes a comparatively simple operation, due largely to clarity of anatomical detail. In our gastric work with Dr. W. A. Mackay we have proved the value of omental colic cleavage. In gastro-enterostomy the abolition of the loop revolutionised that operation, banishing the nightmare of the vicious circle; in gastrectomy this exsanguine proceeding has, more than any other factor, facilitated our resections both in malignant and benign disease.

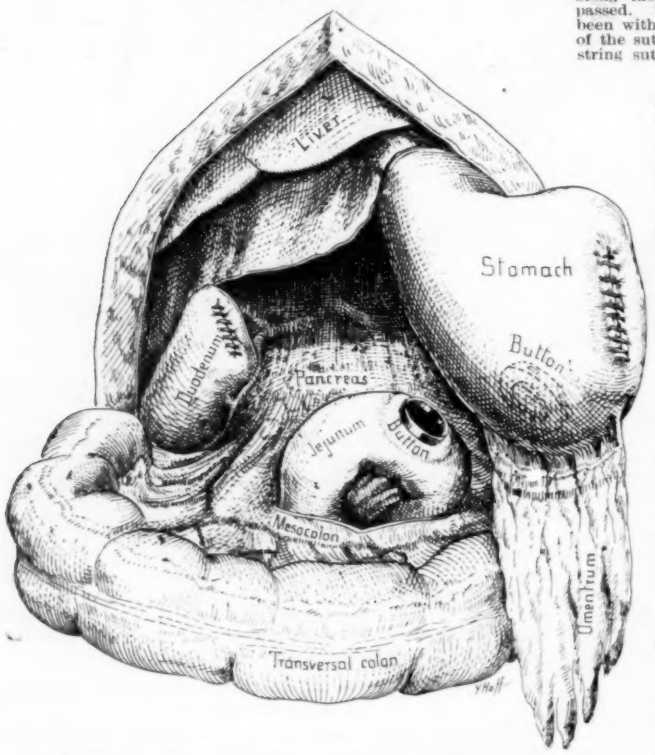
Huelva, Spain.

FIG. 3.



Closing the stumps of the duodenum and stomach. The stomach, grasped in a crushing clamp, has been divided along the clamp, over which a continuous suture is passed. The crushing clamp of the duodenum has been withdrawn; traction has been made on each end of the suture, and the duodenum is closed by a purse-string suture.

FIG. 4.



Aspect of the duodenum and stomach after resection and closure of both ends. The glands, peritoneum, and omentum on lesser curvature have been removed. The gastric and duodenal stumps have been closed by the purse-string suture; gastro-enterostomy remains to be done (button method).

BRISTOL AND THE ENDOWMENT OF RESEARCH.—The Committee of the University Colston Society, Bristol, is going to resume its custom of holding an annual dinner and of making a collection there for the benefit of the Colston Research Fund. Both dinner and collection fell into abeyance during the war, but it is to be hoped that the Fund will not merely come to life again, but that it will also reach a far higher figure than heretofore. So far it has never amounted to more than about £500—a useful beginning, but no more than a beginning. The President for the year is the Bishop of Bristol, the President-elect Alderman Frank Sheppard, a much-respected Labour leader. Bristol University is the only one with a fund of this character to stimulate its work, and the value of an incentive to research is considerable.

A CASE OF HYDATID INFESTATION OF BONE, WITH MULTILOCULAR HYDATID DISEASE.[1]

BY C. E. CORLETTE, M.D., CH.M. SYD.,
SURGEON TO THE SYDNEY HOSPITAL.

Hydatid disease has not lost its interest for us in Australia. It still kills people. It still furnishes problems of many kinds. And we are still finding new matter for study, from which we can reach forward to some new knowledge, and by which we can test the value of current views. The case here recorded, I think, represents an instance of this.

H. H., male, aged 65, from the Coonamble district, New South Wales, was admitted to the Sydney Hospital on Nov. 2nd, 1918, complaining of pain in the right thigh and hip and a swelling of the same thigh, said to have existed for eight years. Eighteen years ago he had had pneumonia, but, with this exception, had apparently enjoyed ordinary health up to nine years ago, when a horse fell on the limb. It was said not to have been broken, but he had been lame ever since. Three years later he was run over by a cart, when the limb became very swollen. The swelling was incised at the time and had never entirely disappeared. The patient had walked with a stick for several years, and for the last five years had been subject to attacks of stabbing pain in the thigh and buttock. Twelve months ago he noticed the appearance of a small swelling in the groin, and three months later a larger swelling appeared below the inguinal ligament.

Present condition (Nov. 2nd).—Lies with right leg everted, and is unable to rotate it inwards. The right lower limb is 15 cm. shorter than the left. There is a large, uneven tumour, smooth in contour, most prominent above and internally, and projecting there about 2 or 3 cm. It extends downwards from the inguinal ligament in the femoral region to near the junction of the middle and lower third of the thigh. It is not tender on pressure, elastic, but not fluctuating. In the inguinal region is a further large swelling, which is soft and elastic to touch and gives an impulse (?) on coughing. The swelling fills up the inguinal canal and is reduced in size by pressure. Over the most prominent parts of the swelling the skin has a dusky red, congested appearance. Behind, a large, tense, elastic tumour can be felt below the gluteal fold. The muscle of the thigh is considerably wasted, and the upper portion of the thigh is disproportionately large as compared with the lower part. On palpation of the abdomen a large elastic mass can be felt outside the lateral border of the rectus, extending up from the inguinal ligament to the right costal margin. It is not tender except to a slight degree in the angle between the twelfth rib and the sacro-spinal muscle. The area of the mass is dull to percussion, and it is continuous with the liver dullness above.

The arteries are thickened, the heart sounds distant, and the second aortic sound accentuated. The only note about the respiratory system is that the patient suffers from a cough.

A radiographic examination was made, and the plate showed fracture of the right femur at its upper extremity, with appearance suggesting a new growth. There was great enlargement of the bone. The shadow of the ilium was faint and ill-defined and showed irregular defects of calcification.

Operation.

On Nov. 6th, under anæsthesia, a small incision was made over the upper of the two tumours in the region of the groin. Immediately a large quantity of a soft, mushy material, of granular consistency, and somewhat resembling boiled milk-sago, flowed out of the opening. A close naked-eye examination showed that it consisted of enormous numbers of minute hydatid cysts mixed with apparently granular material. (These granules were found later on to be more minute hydatid cysts, of microscopic dimensions.) The material, therefore, consisted of a pultaceous mass of closely packed hydatids. A finger was then inserted and a large cavity was discovered containing several sacculations, dividing it up into loculi. Somewhere on its mesial wall a small opening was found, at first not large enough to admit the finger. This opened out into another large sacculated cavity, extending downwards into the femoral region, and dipping deeply into the adductor side of the thigh, but subcutaneous in its anterior portion. Both these cavities contained also numerous small pieces of friable calcified deposit, one or two pieces being as large as the terminal phalanx of a finger. These pieces were obviously not bone. From beside the first cavity a small, separate sac, about as large as a walnut, was dissected out entire, and found to contain the same material as the cavities first opened. There was no trace of any mother-cyst. The cavities were washed out with saline solution, and the wound closed without drainage.

The wound looked well and matters went on all right for a week, but it gaped again, unhealed, when the sutures were removed. Immediately enormous quantities of the same soft, sago-like material began to pour out. The tense, elastic tumour behind disappeared and its site became soft and lax. The edges of the wound showed some redness, the temperature rose somewhat, though not very high. On the tenth day a few blood clots began to exude from the opening, and continued to escape till the patient died, on the twelfth day. The apparent hæmorrhage was not very large. The sago-like discharge continued to the last.

Post-mortem Examination.

The cavity opened up at the operation was found to intercommunicate with other larger and smaller loculi around the upper part of the femur, and these again with other cavities passing up behind the iliac bone and through erosion-holes and also via the obturator foramen into the pelvis and thence upwards. The swelling which had been noticed behind the hip, below the gluteal fold, belonged to a very large cavity extending up over the dorsum ilii. It was found at the post-mortem examination that this contained, together with the material which has been described, a large quantity of blood-clot. It seemed that the chief bleeding had occurred in this cavity, and that it might be explained by rupture of a large vein on relaxation of the hydrostatic pressure as the hydatid material drained away.

The large mass noted on the right side of the abdomen was found to have been produced by an enormous ramifying cavity reaching from within the pelvis up along the general course of the psoas as high as the liver, but not invading this organ or the kidney. The cavity was mesial in relation to the kidney and partially covered it.

Bone lesions.—As for the bone, the right side of the pelvis was eroded everywhere, and its skeletal structure was reduced to a fretwork, or network, of thin bone. The acetabular cup had vanished, and with it had vanished the head of the femur. (Fig. 1.) Through the perforation extended a large branch connecting the upper cavity with the cavity in the femur. The neck of the femur was tunnelled by this, so that only the cortical part survived. The tunnel opened into a large gap at the top of the shaft of the femur, the trochanteric part of the bone being very widely expanded around it. The cavity here became continuous with the loculi around the femur and the dorsal surface of the ilium. The congeries of intercommunicating cavities from above the kidney down into the upper part of the thigh, notwithstanding all the drainage that had been going on, still contained several pints, perhaps several quarts, of the characteristic, creamy-white, mushy agglomeration of tiny hydatids that had oozed out at the operation. But they were not all so small. There were larger cysts, though few in number, measuring up to 2 cm. in diameter.

In addition to the system of intercommunicating cavities on the right side, other separately encapsuled accumulations of the same material were discovered at

[1] This is an abridgement of an article which appears in full in the Australian Medical Journal.

the post-mortem examination. One was a very large sac lying in the soft parts of the left thigh, mainly posterior. It reached from the level of the upper end of the bone above nearly to the popliteal space below. Another was a sac between the spleen and the diaphragm, the top of the spleen forming its floor, and the under surface of the diaphragm forming its roof. This accumulation was about the size of a small orange. It will be remembered that still another small separate sac was removed entire at the operation.

Kidneys and liver.—The kidneys and liver were entirely free from any sort of hydatid growth or deposit. So was the left lung. But the right lung presented a very remarkable appearance. The whole of the apical part looked like marble, giving the impression that a series of small hydatid cysts were lodged beneath the pleural surface. At the lower margin of the upper lobe another hydatid mass could be seen, about the size of a pigeon's egg and elastic in consistency. This was incised and found to contain a densely packed mass of crumpled-looking hydatid membrane, cutting like a solid jelly. No free fluid exuded from the section, and there was no sign of an enveloping mother-cyst. No further cut was made in the fresh tissue, but it was put into hardening fluid for examination later on. As it turned out, this was a pity, for it spoiled the prospects of a good photograph. There were no pleural adhesions.

Lung.—The hardened lung was sliced up on Feb. 3rd, 1919, and an extremely interesting condition presented itself—no less than a multilocular hydatid of the lung. (Figs. 2 and 3.) The marbled appearance seen at the apex was not due to separately embedded hydatid cysts, but to digitations of an infiltrating mass of crumpled hydatid tissue. At the apex the mass was distinctly more cystic and less solid than at the lower aspect of the lobe, and there were larger cystic formations, but all irregular and crumpled. Separate cysts could not be isolated from one another, but there were a few isolated small-sized cysts lying outside the main mass and enveloped by normal-looking lung tissue. There was distinct mineralisation of a few of these outpost cysts, none of which was larger than grains of wheat, but all quite as hard. It could not be said that the main mass was appreciably calcified. The main mass extended through the lobe from its lower surface up into the apical portion. Serial cuts showed its continuity, though in the middle part it showed less prominently and seemed to be more mixed up in the connective tissue framework of the lung. It might be said that the whole existed as a somewhat sinuous formation of densely packed hydatid substance, about the thickness of a finger in its middle and expanding towards the apex and base of the lobe. The apical part was digitated, not, however, by connective tissue framework, in such a way that it might be compared roughly to the contour of a moderately distended kidney pelvis.

FIG. 1.

Hydatid infestation of bone, showing the right os innominatum and the upper end of the right femur expanded in the form of a thin bony network.

The brain, unfortunately, was not examined.

The vertebral column in the lumbar region was sawn through, and the part below was removed with the pelvis and femur for maceration and preparation as a museum specimen. The bony fretwork which represented the right side of the pelvis was so delicate and attenuated that, in spite of every possible care, some breakages occurred.

The prepared specimen is shown in the excellent photograph. (Fig. 1.)

Microscopic Examination.

I made a microscopic examination of the sago-like material from the bone cavities, &c. In the first place there was a large quantity of granular debris. The tiny grains, down to dimensions smaller than were distinguishable by the naked eye, were seen to consist of small hydatid cysts with the characteristic striated cuticle. Some of the larger cysts were also examined in the same way. In no case were any scolices or hooklets detected.

Microscopic examination of sections of the lung lesion showed that the whole tract was infiltrated with hydatid material. The hydatid membrane had fallen away from the adventitious investiture in most cases, leaving gaps in some of which shrivelled masses of hydatid membrane could be seen. The largest lacunæ of this sort were in the apical portion. In the intermediate portion the cysts were grouped in numbers of small masses close together. Here they were mostly of very minute size, much smaller than could be separately distinguished by the naked eye. Fine fibrous trabeculæ separated the groups into loculi. Many of these trabeculæ had been cut by the section knife. The normal tissue of the lung lay adjacent to these infiltrating masses of tiny hydatids without any very remarkable walling off. Around the apical masses small-cell infiltration was more noticeable, but in the intermediate part there was neither excessive development of fibrous investiture nor other evidence of great reaction. There was certainly nothing to give confirmatory evidence of the violent tissue reaction which Melnikow-Raswedenkow[1] has described. Neither scolices nor hooklets were discovered.

Remarks.

The case is of special interest because of the unusual combination of lesions in bone and in soft

tissues. One of the arguments against the theory that cystic and multilocular hydatid disease are caused by the same parasite is the comparatively small size of the cysts in the latter. Virchow[2] suggests that the limitation of free growth by the pressure of Glisson's capsule, or of bone, might account for this difference in size. This suggestion would not apply to my case, where the cysts were small, even in soft tissues, but since they were frail and delicate, rupturing at the slightest violence, the churning up of the mass as the patient moved would certainly account for the bursting of the larger ones. Moreover, with such a prodigious number of individuals massed together in the closest contiguity there would also be nutritional difficulties, and the limitation of food-supply would interfere with growth. It is probably a similar cause that keeps the daughter cysts within an ordinary hydatid small.

Again, according to Davies Thomas,[3] the channel adopted by the hydatid embryo from the portal system to the bone is probably that of an embolus through the heart into the systemic circulation. However, another method of hydatisation (if I may coin such a word) is the infection of the peritoneal cavity by rupture of a fertile cyst into it. I have on one occasion removed a small hydatid cyst from the subcutaneous tissue of the abdominal wall. It is conceivable that the rupture of such a cyst, if fertile, might cause liberation of scolices, some of which would enter the general circulation through the venous channels, though most of them would probably enter lymphatics. The analogy of fat embolism (Caldwell and Huber[4]) should be remembered in this connexion. I consider

FIG. 2.

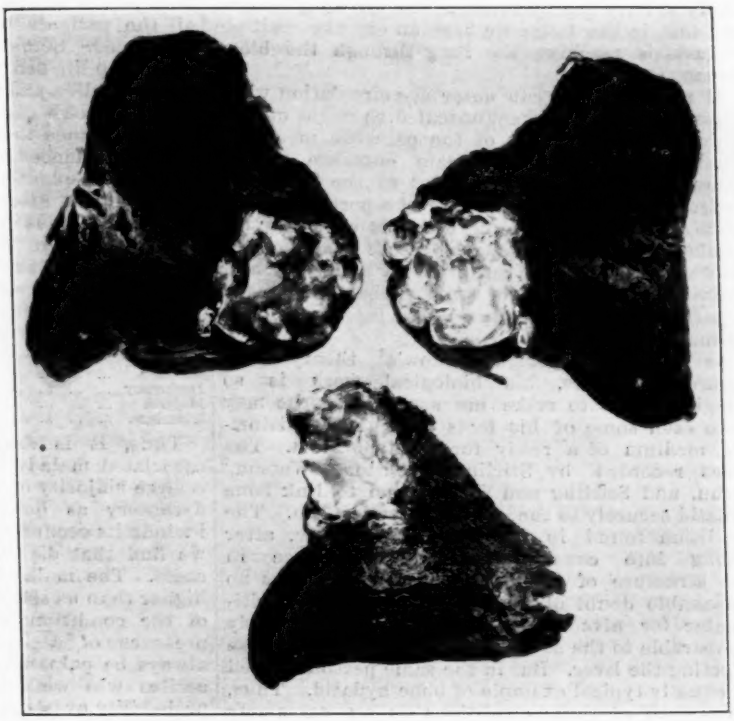
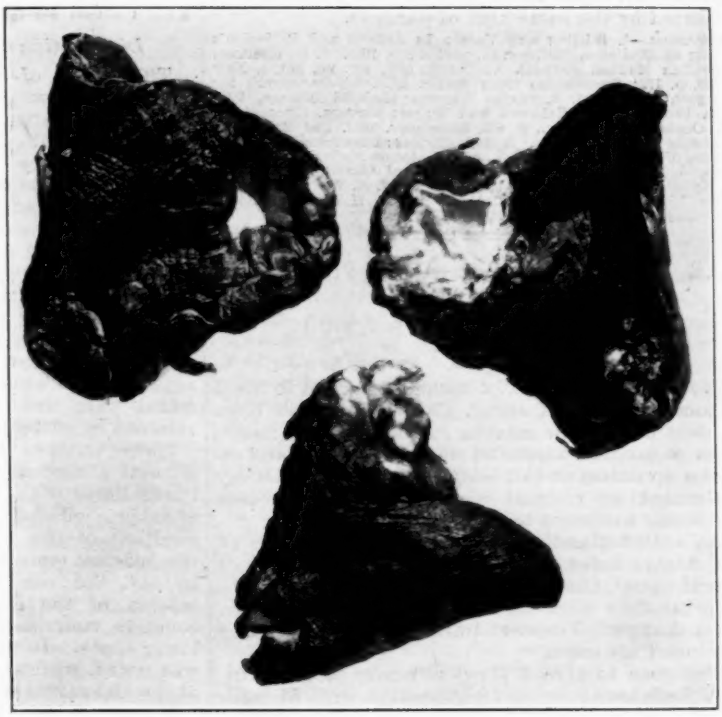


FIG. 3.



The figures are from photographs of a series of sections of upper lobe of right lung of H. H. In each figure the apex of the lung is directed towards the centre. Observe the appearance of the anterior aspect of the apex (in the holed specimen), where a crowded mass of hydatids was bunched so as to give a marbled appearance to the fresh specimen. An examination of the sections will show how the infiltrating mass of hydatid material traces an irregular sinuous course through the substance of the lung to the base of the lobe, where it expands to form a larger mass of crumpled up and tightly packed hydatid material. Most of the infiltrating mass consists of closely set cysts of minute size, set in an irregular connective tissue stroma, and in close relation to normal lung. The rest of the lung shows a few spots indicating small outlying cysts, but is otherwise healthy.

FIGS. 2 and 3.—Multilocular hydatid of lung.

that in my case the bone lesions, which had given rise to symptoms of many years' duration, were likely to have been present before the lung lesions, and that in the latter we have an embolic multiple metastasis reaching the lung through the blood stream.

If medullary fat can enter the circulation when vessels are torn and kept unsealed, so might minute embryonic components of the parasitic mass, and possibly even tiny cysts, gain entrance to the venous current and be carried to the lung in a swarm. A very close seeding of a portion of lung with embolised embryonic hydatids or tiny cysts would presumably be enough to create an agglomeration answering the description of a multilocular hydatid; this hypothesis could probably be tested experimentally by intravenous injections into animals.

As to Melnikow-Raswedenkow's[1] theory of a separate parasite, his biological work is so imaginative as to make me suspect that he may have seen some of his facts through the distorting medium of a ready forged hypothesis. The cases recorded by Stirling,[2] Poulton,[6] Watson,[7] Hahn, and Stirling and Verco[8] seem to link bone hydatid securely to the common cystic form. The condition found in the lung of my case, after taking into consideration the difference in the structure of the organs attacked, allows no reasonable doubt of its identification as a multilocular (or alveolar) hydatid formation strictly comparable to the descriptions of the same disease affecting the liver. But in the same person existed an equally typical example of bone hydatid. Thus, since each of these conditions is an extremely rare phenomenon, the identity of the parasite causing each lesion is practically demonstrated, and the inference may reasonably be drawn that multilocular hydatid disease of the liver is also produced by the same kind of parasite.

References.—1. Stirling and Verco: In Allbutt and Rolleston's System of Medicine, 1905, vol. ii., part ii., p. 1004. 2. R. Virchow: Australian Medical Journal, April 15th, 1884, vol. vi., No. 4, New Series, p. 172; Translation from Berlin. klin. Wochenschrift for Dec. 31st, 1883, p. 824. 3. Davies Thomas: Hydatid Disease, Adelaide, 1884, p. 37. 4. Caldwell and Huber; Surgery, Gynecology, and Obstetrics, vol. xxv., p. 650, December, 1917, Fat Embolism Following Trauma to Bone. 5. R. A. Stirling: Intercolonial Medical Journal of Australia, 1896, vol. i., p. 83, Notes on Hydatid Disease of Bone. 6. B. Poulton: Australasian Medical Gazette, June, 1893, 193, Hydatids of the Tibia and Knee-joint. 7. A. Watson: Australasian Medical Gazette, April, 1895, p. 161, Hydatid of Bone. 8. Stirling and Verco: Loc. cit., p. 1028.

WAR ŒDEMA IN TURKISH PRISONERS OF WAR.

BY J. I. ENRIGHT, M.B., B.A. N.U.I.,
CAPTAIN, R.A.M.C.

IN the autumn of 1916 I became attached to No. 2 Prisoners of War Hospital, Cairo. As I had been resident only a few months in the East my knowledge of tropical medicine was very slight; and on taking up duties at this hospital I was immediately confronted by clinical manifestions of diseases previously unknown to me.

Dr. A. D. Bigland[1] had made a careful study of the œdema cases occurring in No. 2 Prisoners of War Hospital, Cairo, up to July, 1917, when he was unfortunately compelled to relinquish his work. From that period onward I took up the threads and continued his work.

I propose to give a short summary of the principal features observed in connexion with 54 cases out of some 300 that came under my notice, dwelling particularly on the character and distribution of the œdema. The general condition of all the patients was bad. They were weak and emaciated. Some were so feeble as to be unable to sit up in bed without assistance. There was marked pallor, and diarrhœa was invariably present. They showed a general disinclination for food, and, in fact, seemed to have lost all power of assimilation, as evidenced by the presence of undigested food material frequently seen in their stools.

I shall not attempt to give an accurate account of their previous history, as the majority of them were so vague in their replies that little credence could be placed in their answers. However, a good inference as to what diseases they had had can be gained from a scrutiny of the diseases concurrently present as shown in the table.

Total number of cases 54

Pellagra	47	Pulmonary tuberculosis ...	11
Dysentery	27	Pellagra and dysentery... ...	24
Malaria	15	Pellagra and pulmonary tuberculosis	11
Diarrhœa	19		

Thus, it is seen that the most commonly associated malady is pellagra, which is present in a large majority of the cases; whilst if we regard dysentery as being elementarily diarrhœa and include its occurrence under the head of the latter, we find that diarrhœa also occurs in very many cases. The malaria incidence was probably much higher than as shown in the table. As the diagnosis of the condition was based principally on the presence of a large spleen, which could not always be palpated with certainty, especially when ascites was well developed, malaria was in all probability overlooked in many cases.

Hence we may surmise that pellagra, dysentery, and malaria were the most commonly occurring antecedents of this extraordinary œdema, and presumably filled an important rôle in its ætiology, which shall be discussed later.

Distribution and Character of the Œdema.

The mode of onset varied. Usually it was gradual, first manifesting itself as œdema of the feet and afterwards slowly spreading to other parts until it finally terminated in general anasarca. More rarely, cases of massive and generalised œdema were seen to supervene comparatively suddenly. Two such cases occurred in a few days. The œdema was progressive. Despite rest in bed and appropriate dietary it continued, and was apparently in no way influenced by treatment. As previously noted, frequent tapping of the cavities was necessary, as there was a great tendency to fresh formation of fluid. I remember one patient whose pleural cavities and abdomen required aspiration weekly. He had severe abdominal pain and dyspnœa, which were usually relieved by withdrawal of the fluid.

However, even though many cases resulted in general anasarca, exhibiting huge œdema of the lower limbs with marked pitting, ascites, pleural effusion, œdema of scrotum and penis, and swelling of the face and entire back, others had the œdema more or less circumscribed. That is to say, the condition began and remained as œdema of the feet alone or as an ascites. A common combination was that of the face and lower limbs. In most cases swelling of the uvula was noted, whilst two cases had superficial œdema of the abdominal wall.

A point of great interest was the appearance in a few of a discrete subcuticular hæmorrhagic rash in association with œdema of the legs, which were

[1] Dr. A. Douglas Bigland's paper, entitled "Œdema as a Symptom in So-called Food-deficiency Diseases," appeared in THE LANCET, Jan. 31st, 1920 (p. 243).

rather indurated and painful. Evidently a scorbutic factor was involved in these.

General Symptoms.

The patient complained of marked debility, and in the advanced stages of the illness became so weak that he could not attend to his needs. Diarrhœa, frequently turning into dysentery, was almost universally present, and proved most intractable. The temperature was only slightly elevated, except in cases complicated by pulmonary tuberculosis, when, of course, it was much higher than normal. There were some cases which had no pyrexia. Pyorrhœa and spongy, congested gums were also observed, and it may be mentioned that night-blindness, without any apparent ocular changes accompanying it, was by no means uncommon. Dr. H. P. Keatinge, late director of Kasr-el-Aini Medical School, Cairo, found an extraordinary prevalence of night-blindness amongst the native troops engaged in Kitchener's Sudan campaign. He attributed it to scurvy, which was then rampant. There were no characteristic nerve changes. In some patients the knee-jerks were very sluggish, almost absent, whilst the cornea and pharynx were often found to be insensitive. However, the pronounced asthenia was probably sufficient to explain this alteration in nerve response.

Physical Signs.

As a rule the heart showed no signs of organic disease. Occasionally a bruit of hæmic origin was heard. Generally the heart sounds were weak and the pulse was rapid and lacking in volume. This latter fact is important, inasmuch as most continental observers associate bradycardia with their cases of war œdema. Only 2 out of the 54 cases exhibited dilatation which would account for the dropsical condition. Hence, in the vast majority the œdema could not be ascribed to cardiac incompetency, and its causation, therefore, must be sought elsewhere.

No obvious lesions in the lungs were detected excepting in those cases which had pulmonary tuberculosis. As previously stated, pleural effusions were common, and when fluid did not occur the lungs were usually normal.

In cases complicated by malaria the spleen was enlarged and hard; otherwise it was not palpable.

Urine: Albumin was almost invariably present. Sometimes it was represented by a trace; frequently the urine was loaded with it. Much less often albumin was absent and the urine was perfectly normal. There were two cases of general anasarca in which the urine was absolutely normal. A few cases had casts, pus, and a large quantity of albumin. In these latter definite degenerative changes of the kidney had arisen, and probably accounted for the œdema. But the largest proportion showed nothing abnormal excepting some albumin. Consequently the kidney cannot be accused of being instrumental in the production of the œdema.

There was no frequency of micturition. The average daily urine content varied from 45–55 oz. Even under the influence of diuretic treatment no marked diuresis occurred. This failure to promote an increased urinary flow rendered the œdema more persistent, and seriously vitiated the prospects of a hopeful prognosis.

Blood: The blood usually showed an anæmia of the secondary type. There was an absolute diminution in both the red and white blood cells. A characteristic blood count was—

Red blood cells	3,500,000	Polymorphs	36
White blood cells	4,000	Lymphocytes	48
Hæmoglobin	60	Mononuclears	16

In many cases a relative lymphocytosis occurred, whilst the frequently occurring mononuclear increase was evidence of malarial infection. No variation from the normal in the eosinophils was observed. The blood pressure was very commonly lowered, the average systolic pressure being about 100, the average diastolic being about 85.

Post-mortem Changes.

There was a marked absence of subcutaneous fat. All the organs were found to be abnormally reduced in size and weight. The heart, lungs, liver, spleen, and kidneys were similarly affected. The heart usually weighed only 3–5 oz., but in other respects was apparently normal. The liver was almost constantly the seat of fatty degenerative changes. In the malaria-complicated cases, the spleen was enlarged, hard, and pigmented, but in the non-complicated the spleen was very small, sometimes weighing only 3 oz. and of normal consistency. When pulmonary tuberculosis did not accompany the œdema the lungs were normal. The kidneys and suprarenals were shrunken in size, but were otherwise normal. On one occasion a hæmorrhage into a suprarenal was noted. Evidences of dysenteric ulceration—either old or recent—were almost constantly present in the descending colon and rectum. The ulceration was chiefly of the bacillary form.

Owing to absence of facilities the histological changes in the various organs could not be investigated.

Factors in Causation.

As to what factors are operable in the production of the œdema I cannot yet state accurately. An analysis of the concomitant diseases is instructive and may probably help to shed some light on the causation. The incidence of pellagra is remarkably high. Dysentery and malaria, though occurring in much less proportions, are frequently present.

It would seem that this œdema and pellagra are in some extraordinary manner associated, and it is quite rational to suggest that the origin of the œdema is due to the same elements that are responsible for the causation of the pellagra. As the ætiology of pellagra is by no means definitely established this suggestion does not elucidate the matter much further. I may add that I am reserving for another occasion a treatise on the results of my observations of a number of pellagra cases which were under my care for an extensive period. I shall then have an opportunity of discussing its causation, as I am in a position to give a detailed account of the previous diets of the patients.

At this juncture it is sufficient to say that my conceptions of this œdema are that it is due to a combination of two factors—food deficiency and debilitating diseases—e.g., malaria, dysentery, pulmonary tuberculosis, &c.—operating to produce a third factor—adrenal insufficiency—which is the immediate cause of the condition. Whether the food deficiency chronologically precedes the onset of the debilitating disease or vice versa can be only conjectural. I personally think that the debilitating disease or diseases occur first and thus render the system more receptive of the deleterious influences that accrue from the subsequent food deficiency.

Malaria, dysentery, tubercle, &c., were extraordinarily prevalent among the Turkish forces in Palestine, whilst their food-supply during the last 12 months of the campaign was in a precarious condition. That something more than the dietetic element was involved is obvious from the failure of response to treatment, which was almost universal in these œdema cases. In beri-beri, scurvy, and other dietetic diseases the prognosis is distinctly good when the missing food factor is restored. These cases, however, did not respond to improved food conditions, and thus it may be assumed that this peculiar œdema, though closely allied to the food-deficiency diseases, is a distinct entity. That a dietetic agency is engaged is

evident from the following observations made in this epidemic: (1) The remarkable similarity of some cases to wet beri-beri. (2) The frequent coexistence of scorbutic symptoms—e.g., spongy congested gums, brawny swelling of the legs accompanied by a subcuticular hæmorrhagic rash, and night-blindness. (3) The close parallel existing between the physical signs and symptoms recorded and the results obtained by McCarrison in his experimentally fed pigeons. He noted in pigeons fed on a diet deprived of certain accessory food factors a high incidence of œdema, great wasting, marked derangement of gastro-intestinal digestion, malnutrition of the nervous system, a secondary anæmia of the red and white cells of the blood, and pronounced atrophy of all the organs, excepting the suprarenals, post mortem. Strange to say, the suprarenal glands of the pigeons were always enlarged, whereas the suprarenals of all our Turkish prisoners were found to be atrophied. As previously observed, a hæmorrhage into the suprarenals was discovered in one prisoner.

McCarrison attributes the œdema in his pigeons to hyperadrenalinæmia, causing increased intracapillary pressure and acting in concert with malnutrition of the tissues.

Malaria also exerts a very important influence in the production of the œdema. Already in a paper which has been accepted for publication in the *War Office Malaria Journal* I have drawn attention to the development of ascites and œdema even in early cases of malaria. These cases I described as examples of so-called malarial nephritis, as they closely simulated true nephritis. The urine, however, although frequently showing albumin, never contained casts. They responded to antimalarial treatment, with the rapid subsidence of the ascites and œdema. No local focus could be found to explain the origin of the œdema, which was ascribed to the direct action of the malaria parasite or its toxins.

The researches of Paisseau and Lemaire[2] at Salonika are of still greater interest, as they proffer an explanation of the œdema in malaria. Some of their malignant malaria cases manifested a condition of hydræmic cachexia, consisting of anæmia, œdema, and profound asthenia. This phenomenon occurred during the course of even a primary infection, and the mortality was very high. In patients who had succumbed to this variety of malaria they found very important lesions, sometimes degenerative, sometimes hæmorrhagic, of the adrenal capsules, which showed a great accumulation of hæmatozoa. They accordingly attributed the condition to adrenal insufficiency.

Hence it is established that malaria plays an important rôle in the causation of œdema.

The part played by dysentery is more obscure. That it is in some way implicated is evidenced by the frequency with which dysenteric ulceration has been noticed in the intestines in these cases. It is obvious that intestines infected by dysentery cannot undertake their normal functions as regards digestion and assimilation. Thus even mechanically dysentery may be regarded as aiding and abetting in the food-deficiency factor. In a previous contribution I described[3] a peculiar septicæmia occurring rather frequently in Turkish prisoners of war. I attributed it to infection from the lower bowel, as practically all the cases had a history of previous dysentery. On reading McCarrison's[1] "Pathogenesis of Food Deficiency," I was struck by the fact that there was a high incidence of septicæmic infections in his experimentally fed pigeons. He thought the septicæmia was due to some toxic influences under conditions of food deficiency. These pigeons also developed œdema. In the case of the septicæmia amongst the Turkish prisoners the dysentery was the toxic influence whilst a dietetic factor was involved too. It is quite probable that if these cases of septicæmia had been more advanced, œdema would eventually have arisen.

Thus, although no definite date can be adduced to prove the exact effect of dysentery in the production of œdema, it is quite feasible to consider it as a very useful adjuvant in its causation.

In conclusion, I wish to take the opportunity of thanking Lieutenant-Colonel P. S. Vickerman, late O.C. No. 2 P. of W. Hospital, Cairo, for his extreme kindness and help in this work.

References.—1. McCarrison: Indian Journal of Medical Research, 1918. 2. Paisseau and Lemaire: Bull. Académie de Médecine, 1916. 3. Author: Contribution to War Office Malaria Journal, March, 1919; Bahr and Enright: THE LANCET, 1918, ii., 585.

ACUTE GLANDERS IN MAN.

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As acute glanders in man is an unusual condition and one likely to give trouble in diagnosis, at least in its earlier stages, it has been thought worth while to put this case on record. The symptoms corresponded fairly closely to those described by Goodall in his text-book on fevers. This book, however, was not available for reference till after the termination of the case, and the only descriptions of glanders in man that could be found whilst the patient was alive were records of a much less acute infection, also in an officer of the Indian Civil Veterinary Department, described by himself.[1] That infection lasted two years and four months, and then, after an interval of eight months, lighted up again and lasted for a second period of two years. My case was totally different from this and its history is as follows:—

A veterinary officer aged 34 years, employed in laboratory work, was admitted to the Ramsay Hospital, Naini Tal, on June 22nd, 1919, complaining of fever, headache, pain in both legs and in the left shoulder, of six days' duration, the illness having definitely begun on the afternoon of June 17th with malaise, fever, and headache. The patient was a robust man. He had been inoculated for the enteric group in 1917. On admission the mouth temperature was 102° F. and the pulse 88 per minute, the tongue was heavily coated, and yet the patient did not look very ill. The pain complained of in the left shoulder seemed to be around rather than in the joint, but nothing abnormal could be found. On both calves there was an appearance like a small boil which had missed coming to a head; on the front of the left shin there was a red inflamed area like erythema nodosum, and on the dorsum of the left foot there was a painful area. Nothing abnormal was found in the chest or abdomen; the liver and spleen were not enlarged. A blood film showed distinct increase in the polymorph leucocytes. There was no sign of malaria.

The complaint of headache, the dissociation between temperature and pulse, and the appearance of the tongue suggested a tentative diagnosis of one of the typhoid group. The increase in the polymorphs was definitely opposed to this, but it was conceived as possible that there was in addition to the typhoid an infection with staphylococcus causing the boils and accounting for the blood picture. Asked on the point the patient was definite that he had not been working with staphylococcus or other pyogenic organism.

[1] Journal of Comparative Pathology and Therapeutics, vol. xxvi., p. 223, and vol. xxix., p. 26.

Directly on admission blood was drawn from a vein and inoculated into oxbile; a Widal was also done. The report on these was that the blood in oxbile had remained sterile, but that the Widal gave a positive reaction to *B. typhosus* in a dilution of 1/500 and a feebly positive reaction to *B. paratyphoid A* in 1/50, and *B. paratyphoid B* in 1/100, and strongly suggested a typhoid infection. This confirmed the diagnosis arrived at clinically.

For the next week the temperature ran about 104°, generally below, occasionally above, and no new symptom developed. There was still the marked dissociation between the temperature and the pulse, the latter ranging between 80 and 100. But clinically the patient did not resemble a case of typhoid and doubts began to be felt about the diagnosis. A blood film taken on the 29th still showed marked increase of leucocytes. The boils were subsiding and the inflammation over the shin and foot was very much less. The following day the abdomen was slightly tympanitic, reviving the typhoid diagnosis.

On June 30th one or two small pustules appeared on the trunk and scalp, and the back of the right hand became inflamed. The bacteriologist took smears and made cultures from the pustules and reported them sterile. Blood was also taken and injected into broth, and again nothing could be grown.

Problems of Diagnosis.

It was now beginning to be perceived with certainty that the disease was either not typhoid or was typhoid with some other infection superimposed. In view of the profession of the patient, and as he had been employed in the manufacture of mallein, glanders was considered; but the sterile pustules seemed to negative this, and as the pustules were in some places umbilicated for a couple of days, the suspicion of small-pox superimposed on typhoid had considerable attention. On July 2nd and 3rd very many fresh pustules appeared and large confluent pustular areas were formed, worse on the scalp. In spite of the negative bacteriological reports a definite diagnosis of acute glanders was made on July 3rd. On the 4th it was manifest that the old inflamed area of the left shin had broken down, and there was a second area above the left knee which looked suspicious. An incision was made into each and from each a small quantity of thick gelatinous pus was evacuated. Some of this pus was examined bacteriologically and was reported to show practically pure cultures of a bacillus morphologically identical with *B. mallei*.

From this date the condition rapidly went from bad to worse. Fresh pustules continued to appear until it was hardly possible to find a piece of skin free for the area of a finger. Many coalesced and formed large pustular areas. The face was affected with the rest of the body, and the resulting swelling of nose and eyelids made the patient unrecognisable by his friends. From the evening of July 4th the patient was unconscious and breathing stertorously, though nothing was found in his chest at this stage. On the 5th abscesses were opened on the back of both hands and on the dorsum of the left foot showing the same thick gelatinous pus in very small amount. On the 6th examination showed coarse râles at the base of both lungs, doubtless hypostatic. Death occurred at 4 P.M. on this date.

Treatment was symptomatic and as for typhoid till July 1st, when intravenous injections of eusol, 100 c.cm. doses, were begun. These were given daily till the end. At first the pustules were opened, cleaned, and treated with tinct. iodine. They became so very numerous that this was discontinued on July 4th. The organism isolated from the pus was injected into a guinea-pig and produced typical orchitis of glanders as found in those animals, with an exudate into the tunica vaginalis from which bacilli like that of glanders were easily recovered.

The bacteriological investigations were conducted by Major A. Hayes, R.A.M.C., of the Naini Tal enteric depôt laboratory.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

AN OPERATION UNDER DIFFICULTIES.

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THE natives of the British Solomon Islands have been so accustomed to live amidst dirt, filth, and squalor that they seem to become immune to septic germs. I attribute the recovery of the following case to such immunity.

One morning I received a letter from the Father in charge of the Roman Catholic mission informing me that during the night one native stabbed another native in the abdomen and that the stomach and intestines were protruding through the abdominal wound. Although at the time suffering from an attack of malarial fever, I went immediately to the mission station. I examined the native and found that he had an abdominal wound 3 in. long in the epigastric region and running in an oblique direction. The cartilages of the sixth and seventh ribs were completely cut through. Through this wound protruded the stomach. The stomach itself had a wound 1½ in. long and penetrating the entire anterior wall. Through this opening the contents of the stomach were oozing. The patient was in a collapsed condition and his pulse was very soft. Ten hours had elapsed between the time he was stabbed and the time I saw him. As the patient was not in a condition to stand a trip by water and as the hospital was some distance away I decided to operate on the spot. Unfortunately I had no instruments with me. I asked the Father what instruments, dressings, &c., he could supply and he informed me that he could supply me with the following: One pair of scissors, skin suture needles, catgut, rubber drainage-tube, wool, lint, lysol, chloroform. I decided to operate with these instruments, with the addition of my pocket-knife. The patient was lying in a native hut built of leaves and on a wooden bunk. The hut and the bunk were far from being clean.

Operation.—I washed the protruded stomach well with weak lysol solution and salt solution, then without any anæsthetic I stitched up the wound in the stomach, using the skin needles and catgut. Owing to the sharp cutting edges of the needles, great care had to be exercised in stitching up the stomach. The patient was then placed under chloroform. The abdominal wound had to be enlarged, and this I did with my pocket-knife. I then pushed back the stomach into the abdomen, covered it with omentum, inserted a drainage-tube, and stitched up the abdominal wound. Before I left I instructed the Father as to the care of the patient, the diet he should receive, and as to the dressing of the wound.

The following day I returned and fully expected to hear of the patient's death. Much to my surprise, I was informed that he was alive and apparently much better. I did, indeed, find the patient much better. His pulse was beating fairly strongly, there was very little abdominal pain, and he was able to converse with me. Four days after I again visited the mission station and was informed, to my surprise, that the patient was walking about. I dressed the wound and gave him 1 oz. of castor oil. I left in the drainage-tube for a week and then removed it. A fortnight later the abdominal wound had quite healed and the patient was walking about and eating anything he liked. He informed me he could eat just as well as before and had no epigastric pain.

This patient was operated upon in a dirty leaf house and on a dirty wooden bunk. Proper aseptic precautions could not be taken. A pocket-knife, a

pair of scissors, skin suture needles, and catgut were the only instruments used in the operation. I had to be anæsthetist as well as operator. The patient had very little skilled attention after his operation, except that his wound was dressed daily by the mission Father. Yet in spite of all these disadvantages three weeks after being stabbed he was walking about as well as ever, and was none the worse for his experience.

FOUR UNUSUAL CASES OF INTESTINAL OBSTRUCTION.

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THE four cases described below, admitted to the London Hospital within a period of 48 hours, are recorded as being of general interest.

(1) *Atresia of the Small Intestine.*

M. S., aged 18 hours, admitted on Oct. 18th, 1919. Normal labour. Since birth had vomited continuously green froth and had not passed meconium. On admission well-developed child, vomiting greenish fluid. The abdomen was distended. About 1½ inches from the anus was felt what appeared to be an obstruction to the finger. No bulging downwards could be detected. A rubber catheter was passed and was obstructed at the same spot.

Operation.—A muscle-splitting incision was made in the left iliac fossa; the small gut was distended and ended blindly. This blind end was brought out of the wound and enterostomy performed with a small Paul's tube. The child never rallied and died about six hours later.

Post-mortem report.—Paul's tube in apparently blind extremity of distended upper 95 cm. of small intestine (7 cm. circumference). Proximal 30 cm. of distal segment of small intestine (0·7–1 cm. circumference) free from the main mesentery, greatly twisted upon itself, and bound by several band-like adhesions to the lower surface of the proximal intestine, to the sigmoid colon, and to the transverse colon. The omentum replaced by adherent bands. Notch (10 cm. long), with rounded border in mesentery, between the upper extremity of small gut and the base of the apparently blindly ending proximal 30 cm. of the distal segment. Upper segment distended with gas. Pasty greenish-black occasionally white content in lower segment. Pale greenish pasty substance in colon. No abnormality in rectum and anus. Almost complete collapse of both lower lobes of the lungs. Patches of collapse in posterior parts of both upper lobes. Ductus arteriosus and ductus venosus patent. Foramen ovale patent. Bile-stained mucus in stomach. Uratic casts in kidneys. Centre of ossification in lower end of femur. Great congestion of lips and nails. Well-developed male baby.

(2) *Acute Obstruction by Band Simulating Appendicitis.*

D. C., aged 4, admitted on Oct. 19th, 1919. This child was brought to the hospital, having been ill for 48 hours. She complained of gradual onset of pain in the right iliac fossa, where it had remained localised, incessant vomiting, and constipation. On admission the child looked very ill and her eyes were sunken. Her skin showed loss of elasticity. Tongue was dry and coated. Temperature was 99° F. and pulse was 136. The abdomen was slightly full, and the movement on respiration was markedly impaired in the lower abdomen. There were rigidity and tenderness over all the lower abdomen, but this was more marked in the right iliac fossa. On rectal examination no bulging of the pouch of Douglas could be felt.

Operation.—Under the anæsthetic an indefinite mass was felt in the right iliac fossa. A muscle-splitting incision over the mass was made, and later enlarged upwards. The small intestine was distended, and there was a considerable quantity of blood-stained fluid in the peritoneal cavity. The mesentery was studded with tuberculous glands, and there were numerous adhesions between the intestines. On tracing down the distended gut there was a sharp kink produced by a band attached to the mesentery and to the intestine near the mesenteric border. This band was divided. The intestine about 2 feet above was also joined to this point by adhesions and the portion in between was much discoloured, had lost its lustre, and did not contract. It was not considered viable, and about 2 feet of small intestine, extending to within 6 inches of the ileo-cæcal valve, was resected. End-to-end anastomosis was performed. A drainage-tube was passed to the pouch of Douglas after the abdomen had been irrigated with hot saline. After the operation patient's temperature continued to rise, and reached 105° before she died some 12 hours later. No autopsy was allowed.

(3) *Strangulated Sciatic Hernia with Pregnancy.*

C. P., aged 27, admitted Oct. 20th, 1919. Married, no children, no miscarriages; 18 weeks pregnant. Seven days before admission she had sudden acute pain in umbilical region, and vomited watery material. The attack subsided, and she was perfectly well in a few hours. Three days later she was seized with a similar acute pain in the umbilical region which radiated down the right leg and into the pelvis at times. The pain was colicky, and came on two to three times an hour. It was accompanied by persistent vomiting and much retching. The vomit was brownish in colour, but was not foul-smelling. Since this second attack of pain there had been absolute constipation. On admission: A well-nourished woman with anxious expression. Temperature normal. Pulse 112. Tongue dry and coated. The abdomen moved well with respiration, but was definitely distended, particularly in the hypogastric region. No visible peristalsis was seen. There was no rigidity or tenderness, except a slight degree over the lower part of the right rectus. The uterus could be felt reaching to within two inches of the umbilicus. No dullness was elicited in the flanks. On vaginal examination the os was patulous, but the fornices were very tender and difficult to examine. The pouch of Douglas appeared to be empty. On rectal examination a few hard scybalæ were felt which were washed out by two enemata. These were returned without relieving the obstruction.

Operation.—An incision was made in the mid-line below the umbilicus and the recti separated. The small intestine came into view and was markedly distended. A portion of collapsed gut was also found and the two were traced respectively downwards and upwards. They were found to meet in the right side of the pelvis where the intestine was firmly fixed. On attempting to bring up the obstruction to the wound the gut was inadvertently torn. About three inches of gut was then resected, including the tear, which was seen to have been through the constriction ring of a Richter's hernia. End-to-end anastomosis was performed. On examination of the pelvis there was found to be a hernial opening passing into the right sciatic notch above the pyriformis. The sac admitted the tips of two fingers for about half an inch, and in this the strangulation had taken place. A drainage-tube was passed into the pouch of Douglas and the wound closed in layers. The patient was nursed in the Fowler position. There was some difficulty in getting the bowels to act at first, but afterwards she made an uninterrupted recovery.

She was discharged on Nov. 19th. Her wound was well healed and her pregnancy undisturbed. The uterus reached to within one inch of the umbilicus. On vaginal examination the os was still somewhat patulous and there was still some tenderness in the right fornix, which bulged slightly.

(4) *Acute Obstruction by a Band in an Elderly Man.*

J. W., aged 56, admitted Oct. 20th, 1919. This man was admitted complaining of gradual onset of pain in the umbilical region of the abdomen for four days. The pain was not severe, but was dull and aching in character. Since the onset he had vomited repeatedly, and had returned everything that he had taken. The vomit consisted merely of the food he had attempted to

eat or drink, It was not brown in colour. His bowels were opened on the first day, and there was a constipated result to an enema on the second day. Since then the constipation had been absolute. He had never had diarrhœa or been troubled with his bowels in any way. His right hip was ankylosed and he had been treated for tuberculous disease about five years previously. On admission: Temperature 97° F. Pulse 80. Tongue slightly coated. The abdomen was distended and showed a definite ladder pattern with visible peristalsis. There was no ascites. The liver was not enlarged and no lump could be felt in the abdomen. On rectal examination scybalæ could be felt. An easily reducible left inguinal hernia was present. There were numerous scars over the right hip, one of which was discharging yellowish pus.

Operation.—An incision was made over the left rectus below the umbilicus, the muscle was split, and on opening the abdomen a small quantity of straw-coloured fluid was found. The small intestine was distended, but the cæcum was empty. The intestines were matted together by old fibrous adhesions. On tracing the distended intestine down a sharp kink was found, produced by a thick fibrous band attached to the mesentery and to the intestine midway between the mesenteric and the anti-mesenteric borders. This band was divided and the gut above emptied itself gradually past the stricture. The wound was closed in layers.

The patient died about 24 hours later with symptoms of ileus.

Post-mortem report.—Hæmorrhagic partial necrosis, in places almost perforated, of a knuckle of ileum (6·5 cm. long) situated 183 cm. above the cæcum. This portion of gut lies free in the peritoneal cavity. Great distension and a few submucous hæmorrhages in small intestine above strangulation. Very slight fibrinous adhesions between coils of gut throughout abdomen, but no evidence of tuberculosis in these adhesions. Large indirect inguinal hernial sac left, reaching to bottom of scrotum and containing an easily reduced portion of pelvic colon. Collapse of large intestine. Great acid digestion of lungs with congestion. A few fibrous scars producing puckering of pleura apex of left lung. No fibrous pleural adhesions. No tuberculosis of mesenteric glands. Brown atrophy of the heart. Numerous puckered scars, some of them with shallow ulcers covered by scabs, around the right hip-joint. Considerable mobility in the joint.

Remarks on Cases.

The points of interest in these cases are: (*a*) The varying ages of the respective patients; (*b*) the unusual nature of the causes of obstruction; (*c*) the impossibility of diagnosing the actual cause of obstruction before operation; (*d*) the length of the history in the last three cases; (*e*) the fact that in Case 3 apparently a previous strangulation had reduced itself three days before.

I am indebted to Sir Hugh Rigby and Mr. Robert Milne, under whom the cases were admitted, for permission to publish them.

A CASE OF CORNEO-SCLERAL CYST.

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HONORARY ASSISTANT SURGEON, ST. PAUL'S EYE HOSPITAL, LIVERPOOL.

THE case is remarkable for the size of the cyst, which, being situated in the upper half of the right eye, extended across almost the whole length of the palpebral aperture, and caused very marked lagophthalmos.

J. C., a boy aged 9 years, fell on the spout of a kettle three years ago. His right eye was cut, and he was taken to a hospital where the eye was stitched next day. He was in hospital for three weeks, and on leaving it could only see shadows, but no swelling was noticed for over two years. When admitted to hospital he complained of no pain, but only of the discomfort and disfigurement that the swelling caused. He could still see shadows.

The cyst was roughly crescent-shaped and occupied the upper third of the cornea and the sclerotic above

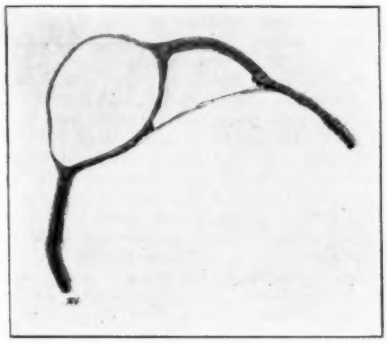

FIG. 1.—Showing general arrangement of cyst.

this and on either side. It measured 25 mm. in the horizontal direction and 12 mm. from before backwards at the point of its greatest depth. The upper lid barely covered the cyst. There was no ulceration present. There was no anterior chamber and no pupil was visible. The tension was +3. No movements were seen in the cyst.

The eye was removed on August 14th, 1919. On section the cyst was found to contain clear fluid. It had the characteristics of an implantation corneo-scleral cyst. The iris was stretched in the vicinity of the cyst, but in

FIG. 2.—The corneal wall of the cyst, showing the corneal epithelium on one side and the epithelium lining the cyst on the other. A projection of the epithelium into the cavity of the cyst is shown

front was firmly adherent to the cornea. The posterior chamber was deepened, especially near the cyst, and pigmented bands of organised lymph could be seen in front of a small and fibrous lens. No communication could be made out between the cyst and the posterior chamber. The optic nerve was cupped. The cyst was lined with squamous epithelium, which in places sent down projections which formed imperfect septa.

The sections here illustrated were made by Dr. Gorst at the Thompson Yates laboratories.

WEST CORNWALL INFIRMARY, PENZANCE.—At the annual meeting of the subscribers to this institution, which was recently held, it was decided to make a public appeal for the erection of a children's ward. The cost of the scheme is estimated at £12,000, being £5000 for the building and £7000 for maintenance. It was reported that the late Mrs. D'Esta Oliver had bequeathed £3000 to the funds of the charity.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

TYPHUS AND RELAPSING FEVER IN MESOPOTAMIA AND NORTHERN PERSIA.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 27th, Dr. A. F. VOELCKER, the President, being in the chair.

Dr. W. H. WILLCOX read a paper on Typhus and Relapsing Fever in Mesopotamia and Northern Persia. He gave a history of these two diseases and accounts of their outbreak during 1916, 1917, and 1918 in these regions, pointing out that the ætiological factors were all in accordance with the view now generally held that the body-louse is the main channel of infection of both diseases. Those factors which were associated with prevalence of the diseases which are endemic were those favourable to the life and multiplication of the body-louse. In Persia, owing to the lower degrees of maximum temperature, occurrence was all the year round, while in Mesopotamia the great heat of the summer effectively stamped out the diseases. In Lower Mesopotamia the diseases were uncommon amongst the natives owing to temperature conditions being adverse to their spread. In the Baghdad area, however, the diseases occurred practically always in the early part of each year, being, no doubt, brought along the caravan routes from Persia and the upper regions of the Euphrates and Tigris by pilgrims and others. The Turkish troops in Mesopotamia during the whole war suffered terribly.

Another source of the diseases in 1918, continued Dr. Willcox, was the influx of some 50,000 refugees from the lower Caspian region, bringing with them a heavy louse infection, as well as both diseases. In 1916 and 1917, since communication with the local Arabs in the infected areas had not been established, the main source of infection of the few cases that occurred was from Turkish prisoners. Those of our troops who came into contact with them, such as medical personnel, motor transport drivers, military guards, &c., ran serious risks of infection. After the occupation of Baghdad and large areas of Northern Mesopotamia, the troops came more into contact with the local population, so that in 1918 the main source of infection was the local population of Arabs, Kurds, and Persians. Many of these had been enrolled into native labour corps and in them both diseases occurred, so that those of our troops who were brought closely into contact with these men ran grave risks of infection; thus the medical personnel, ambulance and transport drivers, military police, and those in charge of the native labour corps were specially exposed.

As regards other channels of infection than the louse, it was pointed out that since the excreta probably contain the virus of the disease, general care as regards prevention of infection was necessary in the nursing of patients. With typhus no case was observed where the disease had spread from patient to patient in hospital, and no case was known of the spread of this disease where the agency of lice could be excluded. With relapsing fever the risk of infection appeared decidedly greater. Several instances occurred where the disease had spread from a patient to another person when every precaution had been taken to prevent access of lice. Two cases were quoted in which bacteriologists contracted the disease after taking blood from a patient for examination, in each case the usual incubation period intervened and it seemed likely that the blood of an infected person may convey the infection, also possibly the excreta in cases of a relapsing fever may serve as carriers of the disease. An unusual type of relapsing fever occurring in Northern Persia at Mianeh was described; this appeared to be conveyed by a tick known as the Mianeh bug, and the symptoms resembled those of ordinary relapsing fever such as occurred in Mesopotamia, the attacks being perhaps more severe. No opportunity of blood examination in these cases offered itself. The close association of typhus fever and relapsing fever was alluded to, and also the interesting fact that a patient suffering from one of these diseases might carry on him lice which were capable of producing both diseases. The native populations appear to have considerable immunity to typhus fever, and often had the disease in a very mild form.

The occurrence of outbreaks amongst the troops was described and the source of the different outbreaks traced. The interesting feature of the Mesopotamian campaign was that owing to the difficulties of communication, through the long distances between the posts where troops were stationed, the origin of each outbreak of disease could usually be traced, and the spread of infection effectively guarded against. At no period did these diseases get out of control, and outbreaks were quickly localised and stamped out.

Symptoms and treatment of typhus fever.—Attention was drawn to the marked severity of the mental symptoms and to the profound effect on the brain lasting many months after the fever had subsided, thus lack of concentration and inability for mental effort, associated with a condition of slight deafness, commonly lasted for at least six months. An important diagnostic symptom in the acute stage of illness was the loss of the knee-jerk, which usually disappeared about the fifth day and remained lost during the febrile stage and for a varying period after this had subsided. In severe cases a condition of coma with incontinence sometimes lasted for a week or more after the temperature had become normal. The character of the rash and its distinctions from the rash of enteric and paratyphoid and other rashes which occurred in Mesopotamia were fully described. In the treatment of typhus fever attention was called to the great value of administration of normal saline. In severe cases this was given rectally every four hours, commencing about the eighth day, and in the later stages subcutaneous and intravenous saline were given. Where symptoms of venous thrombosis threatened, an intravenous injection of normal saline containing ½ per cent. and 1 per cent. of citrate soda was of value. The value of arsenobenzol in the treatment of relapsing fever was emphasised, and a dosage of 0·3 g. was recommended (or 0·45 g. of novarsenobenzol). Almost invariably the temperature would fall to normal within 18 hours, and usually no relapse occurred. In a series of 241 cases treated by kharsivan only 5 per cent. showed relapses. Doses smaller than 0·3 g. were found to be inefficient, while doses greater were inadvisable, owing to the risk of hyperpyrexia. When a relapse occurred after the dose of kharsivan recommended it was usually of a very mild nature, and generally the apyrexial period was much prolonged.

The debate, continued by Dr. J. C. G. LEDINGHAM, Dr. J. A. ARKWRIGHT, Dr. WILLIAM HUNTER, and Dr. A. G. PHEAR, and others, will be reported in our next week's issue.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

THE THERAPEUTIC USES OF OXYGEN.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 20th, Dr. H. H. DALE, the President, being in the chair.

Mr. J. BARCROFT opened a discussion on the Therapeutic Uses of Oxygen, which was used by him in the treatment of men who had been gassed either in battle or during the making of munitions. He described the method of oxygen administration as carried out in the Cambridge laboratory by him and his co-workers, which, he said, was of the simplest character, as, owing to the treatment being experimental, they desired that the patient should be subjected to only one altered condition of life—namely, the composition of the atmosphere which he breathed. For this reason they avoided all types of apparatus for the administration of oxygen through a mask or otherwise, considering that a second variable was introduced by hampering the

patient with apparatus. A glass room of about 1000 cubic feet in capacity formed a tiny ward. In this were three beds. The ward was gas-tight and fitted with air-locks large enough to serve the entrance and exit of the patients. Small air-locks were provided for the admission of food, &c. The composition of the atmosphere was kept at about 40 to 50 per cent. of oxygen and 50 to 60 per cent. of nitrogen. The carbonic acid and aqueous vapour were removed by the passage of the gas through an external circuit, which contained scrubbers of soda lime and calcium chloride. The patients were put in the chamber from about 5 P.M. till 10 A.M. for five consecutive days. The cases were all of a chronic character. In a chronic case of poisoning with chlorine, phosgene, or chlorpicrin the patient usually complained of nocturnal attacks of dyspnœa, with which might be associated sleeplessness, or physical distress out of proportion to the exertion which caused it, or both. Of these two the exaggerated response of the system to exercise offered a better mark for objective expression than did the nocturnal dyspnœa. The problem of how an exaggerated response to exertion might be stated in terms of units was one which had concerned many workers within the past few years. The response either of the circulatory or the respiratory system might be taken as the guide. Each had its advantages and its drawbacks. The pulse was easy to count, its variations in rate were susceptible of simple and accurate statement, but its significance in relation to the strain put upon the heart or the volume of blood propelled round the body was obscure, whilst the mechanism of its regulation was, at the time the experiments were carried out, also obscure. The respiratory system was in some respects more hopeful, for not only could the frequency of the respiratory system be measured but the total ventilation, the composition of the air expired and of that retained in the lung, and the depth of respiration, could all be recorded. On the other hand, the respiration was, to a much greater extent than the pulse, under the influence of the will, and therefore the records when obtained were to that extent of more doubtful value.

In the first 14 cases studied the response of the pulse to effort was taken as the criterion, in the last 12 the respiratory response.

Pulse as an Index of Effort Syndrome.

The procedure, as far as the pulse was concerned, was as follows. After a general examination of the patient had taken place he was made to rest for 15 minutes; his pulse was then counted. He was then given an exercise to perform, the severity of which was judged appropriate to his condition. His pulse-rate was counted again when the exercise was completed, and the time observed from the end of the exercise till the pulse had dropped to within six beats of its resting-rate. In nearly every case the pulse of the gassed man took an unduly long time to return to its normal. After the treatment the man was given the same test as before it.

Tables were then shown of the 14 cases, giving the recovery times of the pulse after specified exercises. All received benefit. With regard to the permanency of the effect on pulse, several of the patients were examined two and a half months after treatment, when it was shown that there was great improvement as compared with the original condition; three of them were normal (as compared with a healthy man doing the same exercise), two were nearly so, and one was improved, though his condition was not quite so satisfactory as immediately after treatment.

The Red Blood Corpuscle Count.

A sign which was frequent but by no means invariably present in cases gassed with phosgene or chlorine was a high red blood corpuscle count. It was largely the occurrence of this sign which suggested the oxygen treatment to Mr. Barcroft and his co-workers. Occurring, as it does, in persons exposed to atmospheres deficient in oxygen, they argued that the normal atmosphere to these patients presented an oxygen deficiency, and that therefore an increase in the oxygen inspired might reduce the red blood count to a normal value. The results of treatment were satisfactory, for not only were the high blood counts reduced to normal during the treatment, but the blood counts which were normal before the treatment remained normal throughout. Two and a half months after the treatment counts were made in several cases, and in none was it very high, the highest being 6·2 millions. None of these, however, had very high blood counts to start with.

Nocturnal Dyspnœa.

The third sign to which a good deal of attention was paid was nocturnal dyspnœa. The treatment was satisfactory to the extent that out of six cases in which these attacks were a marked feature only one showed no improvement. In one case they were much improved, thought not completely abolished, whilst in the other four cases the attacks were completely and permanently abolished. No man had an attack during treatment. Much more stress could be laid on the abolition of the dyspnœic attacks but for the fact that they were signs of a much more subjective type than persistent quickening of the pulse on exercise or high red blood count.

With regard to the question as to whether these results could be attributed to some subjective cause, the following points should be considered: (1) As regards the red blood corpuscle count, it was extremely unlikely that the numbers should drop from, say, 7·5 millions to 5 millions as the result of suggestion. Moreover, in gassed rabbits precisely the same phenomena occurred. (2) As regards the pulse, 12 cases of D.A.H. not attributable to gas poisoning were given oxygen treatment. These, taken as a whole, showed no clear benefit from the treatment. There seemed no reason why these pulses should not be as susceptible to suggestion as the gassed cases. (3) As regards the nocturnal attacks, in the case of one man a pantomime was enacted of blowing in oxygen in such a way as to make him suppose that he was getting the treatment, whilst the oxygen was expelled from the chamber unknown to him as rapidly as it entered. He complained that the treatment did him no good and that his nights were not improved; on the fourth night the treatment really commenced and the man at once improved.

DISCUSSION.

Dr. G. H. HUNT described the method by which they measured the decrease in breathlessness, and the improvement in this respect, after treatment, of the gassed men. It was realised that the main difference in the breathing of healthy and breathless men lay in the time taken for each to recover from the exercise and return to the condition shown at rest. An estimation of the time taken after exercise for the respiration to return to its pre-exercise conditions was found, for many reasons, to be impracticable. Instead of this they compared the total ventilation after exercise with that at rest, and estimated the relation between the total ventilation during the second, third, fourth, and fifth minutes after exercise with that during four minutes when the subject was at rest. By dividing the former by the latter they obtained a figure which they called the "dyspnœa ratio." This they found fulfilled their requirements satisfactorily, for it was reasonably constant for the same individual doing the same amount of work in a given time; it was approximately the same for eight healthy men who were in good "training," and for four who were in bad "training," and clearly distinguished healthy men from those suffering from any disease known to cause dyspnœa. It was also possible to measure in foot-pounds the efficiency of a man—that is, the amount of work he could do with the degree of dyspnœa which was experienced by a trained man doing 10,000 foot-pounds in 1½ min. Having obtained a standard by which a man's efficiency could be gauged in terms of work, it was possible to measure the degree of improvement produced in "gassed" patients by oxygen treatment. In summarising the results of oxygen treatment Dr. Hunt said that of 12 patients, eight improved considerably, three improved slightly, and one did not improve.

Dr. J. S. HALDANE pointed out that even a very small degree of anoxæmia (deficiency of free oxygen in the

blood) would, if given time, have a serious effect on the individual. This was exemplified in mountain sickness, in which the symptoms were due to the effect of anoxæmia on the nervous system. The same was true of carbon-monoxide poisoning. Anoxæmia was a common condition among ordinary patients, and it was worth while taking early measures to prevent it; for if serious anoxæmia was allowed to go on for a considerable length of time the patient got into a hopeless condition. This was seen particularly in carbon-monoxide poisoning. With regard to the existence of anoxæmia in acute cases, there was important American evidence in papers in the *Journal of Experimental Medicine* for September, 1919, by Stadie and Harrup. They took examples of arterial blood from the radial artery and determined the deficiency in saturation of the arterial blood. Stadie's cases were principally pneumonias of different types. In practically all there was a deficiency in saturation of arterial blood. In some it was as great as 50 per cent., and with such a deficiency the patient always died. There was a deficiency in croupous pneumonia even when the patient was going on well. There were two causes for the arterial blood in the lung not being properly saturated. The first was that the epithelium had become thickened and clogged by exudation, so that the rate at which the oxygen got into the blood was very much diminished, and there was not time for the blood to get saturated with it as it passed through the lungs. This was what occurred in acute lung-irritant gassing. The second cause was unequal expansion of the lung or an unequal rate of entry of air into the alveoli, so that some alveoli would contain too little oxygen to saturate the blood, whilst in others there would be more than sufficient. This was revealed by the experiments of Professor Meakins, Dr. Priestley, and himself at the Taplow Canadian Hospitals in chronic gas cases. This latter condition could be brought about in the normal person by shallow breathing, which was one of the defects in the so-called chronic cases of gassing. In the case of himself, when in consequence of shallow breathing his respiration rate was increased to 30 or 40, Cheyne-Stokes breathing developed in two or three minutes, and this was abolished by adding a little oxygen to the inspired air. In his and Dr. Priestley's experiments the alveolar air during shallow breathing was normal, and yet there was arterial anoxæmia. In bronchitis and such conditions the distribution of air among the alveoli was interfered with by resistance, so that anoxæmia might occur although the lung epithelium was healthy. In chronic gas cases the patients were short of breath, although the lungs appeared to be all right, as judged by examination with a stethoscope. If a gassed man went on working or walking his breathing became rapid and ineffective, and there would be perhaps only 1·5 per cent. of carbon dioxide in the expired air. The shallow breathing was dyspnœa and not simply hyperpnœa. These chronic gas cases had respiratory neurasthenia, causing shallow rapid breathing on exertion, instead of slower deep breathing. In these and similar cases there were also attacks of very rapid shallow breathing, with urgent asphyxial symptoms. The acute attacks often occurred at night. The experiments carried out at Cambridge and Stoke-on-Trent were of great interest as showing how such patients could be helped by putting them into an atmosphere of air enriched with oxygen. The bad attacks did not occur; sleep was sound, and they thus had a proper chance of rest and recovery.

Colonel S. L. CUMMINS thought that although it was certain that oxygen could do much good in the acute case of gas poisoning and in influenzal broncho-pneumonia and shock, in both of which there was an element of anoxæmia, yet there was a feeling of reluctance on the part of the medical officers to use oxygen. This, he thought, was due to the difficulty in administering oxygen, either through a face mask or by means of an apparatus, to a man suffering from intense anoxæmia, with much nervous irritation and great difficulty in getting breath at all.

Acute Gas Cases in France.

Dr. C. G. DOUGLAS spoke of his experiences in France, where the gassed cases were seen in the acute stage. He said that it was obvious after the first gas attack that oxygen administration did some good to patients with cyanosis resulting from acute pulmonary œdema. After an interval of some months a batch of patients arrived, many of whom were in the gravest condition. They were either deeply cyanosed, of a purple colour, obviously short of oxygen, or they had that grey colour of lips and tongue which is associated with a profound deficiency of oxygen and collapse. At first efforts were made to give oxygen by means of a simple tube and funnel. The next stage in the development of oxygen administration was the nasal tube method, which was improvised by Adrian Stokes after a very serious gas attack. About the same time Haldane produced his apparatus. There was no doubt that an enormous amount of good could be done by administering oxygen by some such suitable method. Dr. Douglas then described two cases of severe acute gas poisoning which were improved and eventually cured by the administration of oxygen alone. Sometimes gas casualties were admitted in a very grave condition of collapse and pallor, and the medical officer found that by treating them with oxygen for a couple of hours or so considerable improvement set in, and venesection could then be carried out with advantage.

Dr. J. A. RYLE spoke of his experiences after a gas attack in 1916, when oxygen was administered by Captain Adrian Stokes by means of the nasal catheter. Dr. Ryle had applied the method then and frequently afterwards with very great success. To the tube leading from the oxygen cylinder was attached a No. 8 rubber catheter. This was lubricated with vaseline and passed directly along the floor of the nose to a distance of four inches into the naso-pharynx; the catheter was looped up to the side of the face and fixed there by strapping and the oxygen allowed to run in gently. By that means it was possible to give oxygen for as long as 72 hours. He had frequently seen men admitted in a state of grey pallor and cyanosis (such as one associates with extensive œdema of the lungs produced by phosgene) with an almost imperceptible pulse and, on several occasions, a respiration-rate of over 60, in a semi-conscious condition, cold, and collapsed. After 72 hours of oxygen inhalation the respirations became reduced to 24, the men made a steady recovery, and were fit to travel down the line by train without accident. One of the chief obstacles to the use of the Haldane mask was the fluid and froth which the men got rid of by the mouth in bad cases of lung œdema. As much as a pint of serous froth might be poured out in a few hours. It was very important that the mouth be kept clean and free from froth, and care must be taken that the mask does not become clogged by the froth. It was necessary also to give the patient fluid nourishment, and occasionally even some solid food, and this was possible when they were having oxygen through the catheter. The cases were classified into three groups. The mildest were the cases which needed merely the oxygen they could get by being out-of-doors; the medium cases seemed to be sufficiently benefited by a small dose of pure oxygen from a nitrous oxide bag given at intervals of five minutes in every quarter of an hour, sometimes at longer intervals; finally, there were the severe cases, for which continuous inhalation of oxygen was obviously the only form of treatment. It was found to be impracticable to pass a nasal catheter down each nostril on account of deflections in the nasal septum blocking up one nostril. Subsequently he used the catheter method, not only for gas cases, but also for the lung œdema of trench nephritis, a condition which gave a closely similar clinical picture to that produced by phosgene.

Dr. R. A. PETERS described a severe case of Broncho-pneumonia, with Cheyne-Stokes breathing, which he had treated by oxygen administered by means of the Haldane apparatus, with marked success.

Work of the Medical Research Committee on Oxygen Research.

Dr. FRANK SHUFFLEBOTHAM described the work which had been done on oxygen research under the auspices of Sir Walter Fletcher and the Medical Research Committee at the North Staffordshire

Infirmary, Stoke-on-Trent. The wards were opened in October, 1918, and up to the present time over 100 cases had been admitted. The cases included for the most part those of chronic gas poisoning, but in addition there had been cases of acute gas poisoning, pneumonia, carbon-monoxide poisoning, and two cases of pernicious anæmia. The patients suffering from chronic gas poisoning derived great benefit from this treatment in the general state of their health, and in many instances symptoms of long standing such as cough, shortness of breath, expectoration, asthma, and irregular action of the heart became less severe in nature and frequently disappeared. The physical condition of the lungs and heart also underwent a considerable improvement. Dr. Shufflebotham quoted from the report to the Medical Research Committee an account of the technical details connected with the construction and working arrangements of the chamber. The estimation of the amount of oxygen and carbon dioxide is carried out by the Haldane apparatus. With regard to the cost of oxygen treatment, Dr. Shufflebotham said that at Stoke-on-Trent, where the strictest economy had been exercised in regard to the supply of oxygen to the wards consistent with the percentage of oxygen in the atmosphere being in excess of 40 per cent., and in spite of all efforts to control expense in every direction, it had not been possible to bring down the daily cost per patient to less than £1 3*s*. 6*d*., not including any sum which could be attributed to capital charges. With pneumonia cases the cost was such that it was very likely to handicap research in this direction, unless money was forthcoming from further grants or philanthropic sources. The high cost of oxygen was due to the fact that the production of oxygen in this country is in the hands of a monopoly. It had been suggested that instead of pure oxygen from the cylinders it might be possible to use the by-product of the air after the nitrogen had been extracted from it. Another suggestion was that liquid air, which contained about 60 per cent. of oxygen, could be used for these cases. He was convinced that there was a great usefulness for oxygen treatment as well as a great field for research, and, considering the amount of human suffering which might be alleviated by such treatment, it seemed almost a scandal that the work should be handicapped because of an oxygen monopoly.

Account of 70 Gas Cases.

Dr. G. H. SOWRY gave an account of 70 cases of gassing. In all cases the gassing had occurred at a more or less distant date, varying from four months to over two years. In most cases the nature of the gas could not be ascertained, though in the earlier cases it was probably chlorine, later phosgene, and later still "mustard gas." The patients were admitted for periods of five or six days, and remained in the chambers for about 20 hours each day, being allowed out for exercise for about four hours each afternoon. The chambers were surcharged with oxygen, the percentage being between 35 and 40 in the earlier cases and from 50 to 60 in the later. After their discharge they were asked to report for examination two, four, and six weeks later. Before treatment the patients were examined and notes made as to: 1. Subjective symptoms such as cough, expectoration, sleeplessness, dyspnœa and palpitation on exertion, asthmatic attacks, &c. 2. Objective signs as revealed by a clinical examination of heart and lungs. 3. The chest was X rayed. 4. An examination of the blood was made, the red cell count and hæmoglobin percentage being noted. 5. The response to effort was tested by three tests—(*a*) short violent effort, by swinging of arms; (*b*) medium effort, by going up and down stairs; (*c*) prolonged effort, by walking round the hospital grounds.

Symptoms on admission.—Most patients complained of (1) cough and expectoration; (2) dyspnœa, palpitation, and præcordial pain on exertion; (3) attacks of nocturnal dyspnœa in all essentials like true spasmodic asthma; (4) sleeplessness; (5) low appetite and dyspepsia; (6) mental depression.

Physical signs on admission.—Lungs: Emphysema was present in about 40 per cent. of the cases. Nearly all of them exhibited râles, rhonchi, or crepitations over the whole or part of the lungs. In many cases over the lowest three or four inches of the bases behind there were slightly impaired resonance and fine crepitations. X ray examination in nearly all cases showed a condition of fibrosis, especially near the roots of the lungs. The appearance of the plates suggested a condition of peri-bronchial phthisis, but in only two cases had he proved the existence of active tuberculosis. If the condition was one of true fibrosis there could be little hope of a permanent cure. Heart: Only a few cases of V.D.H. were found, and in about ten cases there was hypertrophy. The most obvious condition found was a very poor response to effort. At rest the heart sounds were in most cases clear and the action regular, though in a little less than half, there was some irregularity with extra-systole. Even slight exertion in nearly all cases caused a great increase in pulse-rate, with marked irregularity. Nervous system: Very few showed any physical signs of organic disease beyond increased tendon reflexes and some vaso-motor instability.

Results of treatment.—1. Immediate. In the large majority of cases the patients were decidedly better for the treatment. They felt brighter, more cheerful, and more energetic. Their appetites improved, and their digestions were better. Sleeplessness in most cases lessened, and where patients suffered from asthmatic attacks this symptom disappeared. Coughs improved, and expectoration was reduced. The response to effort—as measured by the tests—generally appreciated, in most cases considerably. It was difficult to estimate numerically the results, but a careful classification justified him in saying that of the 69 cases reported upon 23 were very much improved, 30 were much improved, 10 were improved, and 6 were not improved. 2. Later. The later results, as estimated on the last examination (usually six weeks after the end of treatment) were, on the whole, very satisfactory, though there was certainly a tendency for some of the original improvement to be lost. Numerically expressed, of the 60 patients who reported 15 were very much improved, 22 were much improved, 10 were improved, and 13 were not improved. Dr. Sowry then considered the effect of treatment on each of the common symptoms. Besides these cases of gas poisoning other diseases were treated. Two cases of pernicious anæmia were treated with unfavourable results. Five cases were treated, where the predominant symptom was respiratory difficulty, and in all the results were so good as to be almost startling. It was in these cases that he thought the value of treatment in oxygen chambers offered the highest hopes. The five cases comprised two cases of severe acute gas poisoning, one case of coal-gas poisoning, one case of broncho-pneumonia with emphysema in a child aged 3 years, and one case of acute lobar pneumonia, with complete consolidation of the whole of both lower lobes. All these five cases suffered from want of oxygen in a severe form. They all improved almost immediately they entered the chambers. Dr. Sowry was convinced that treatment by the continuous inhalation of a *warm* atmosphere, surcharged with a known percentage of oxygen, held great promise in the treatment of many diseases.

Dr. P. HAMILL spoke of the effects of oxygen administration in cardio-vascular disease and opium poisoning. Oxygen in high concentration abolished the heart-block and maintained the blood pressure at a uniform high level during the apnœic period of Cheyne-Stokes respiration. With the improvement in circulation there was in some cases a return of consciousness. Satisfactory results could only be obtained with a concentration of 40–50 per cent. for hours at a time. The nasal tube was satisfactory but wasteful. Most methods of administration by a mask necessitated the constant attendance of a nurse and were almost equally wasteful. There was a great need for a simple portable apparatus on the lines of that used for insufflation anæsthesia, in which oxygen could be circulated and the CO_2 absorbed. On the grounds of portability and cost sodium peroxide had much to recommend it as a source of oxygen in preference to cylinders.

SECTION OF ODONTOLOGY.

DENTAL SEPSIS IN CHILDREN: ITS CONSEQUENCES AND TREATMENT.

A MEETING of this section of the Royal Society of Medicine was held on Jan. 26th, Sir JAMES COLYER, the President, being in the chair, when Mr. F. ST. J. STEADMAN read a paper on Dental Sepsis in Children: Its Consequences and Treatment. The paper is published in the front part of the present issue of THE LANCET.

DISCUSSION.

In the course of the discussion which followed,

Mr. F. N. DOUBLEDAY said that the function of the teeth was very important, but he agreed that where sepsis was established and the teeth functionless, they were useless and redundant and should be removed.

Mr. F. B. BULL spoke of the importance of the nervous system of the child, which in many cases was such that it was impossible to carry out treatment. Teeth which were septic should be removed at once. He agreed that extensive extraction could be done under ethyl chloride on the open mask.

Dr. ARTHUR SAUNDERS laid emphasis on the excellent results which he had seen in children at the West London Hospital after treatment of the teeth. The children with septic teeth, in addition to being anæmic and wasted were often slightly cyanosed and night sweats were present, so that tuberculosis was often suspected; the heart, too, was often slightly dilated, a condition which he considered to be due to a mild septic myocarditis which cleared up after removal of the septic teeth. Slight albuminuria was often present, and nephritis sometimes supervened. Some acute cases of hæmorrhagic nephritis due to dental sepsis reminded him of similar cases occurring after scarlet fever.

Mr. E. B. DOWSETT said that the way in which children were able to eat after all the teeth had been removed was remarkable. Those whom he had been able to follow up were able to eat even meat, and thrived well. The occurrence later of irregularity was the only bugbear, but possibly this need not be considered seriously owing to the enormous advantage which followed thorough treatment.

Mr. A. T. PITTS said that Mr. Steadman had brought a serious indictment against the medical and dental professions in stating that some members of both professions did not recognise the serious effects of dental sepsis in children. His experience at the Hospital for Sick Children enabled him to endorse all that Mr. Steadman had said with regard to the gravity of the problem and the results of adequate treatment. The effects of dental sepsis, both local and general, were apparent, and equally striking was the improvement in the general health when the mouth was rendered clean. Even where the mouth had to be left practically edentulous the children put on weight and were able to eat their food in comfort. It was astonishing that any man with a medical training should fail to see the harm arising from septic teeth. Frequently mouths were seen in which necrosed roots had ulcerated through the side of the gum, a condition comparable to sequestra being exfoliated. No doctor would regard such a condition occurring elsewhere with complacency, and yet it was sometimes allowed to exist unnoticed in the mouth. It was true that premature loss of the deciduous teeth often led to irregularity of the permanent teeth, but this lesser evil was so completely outweighed by the greater evil of dental sepsis as to be not worth considering. Some had said that this irregularity was a common predisposing cause of pyorrhœa in later life. In his opinion dental sepsis in an adult whose metabolism had reached a state of equilibrium was less serious than sepsis in a growing child who needed nourishment, not merely to replace the daily loss of energy, but to increase the bulk of its tissues.

Mr. LEWIN PAYNE laid stress on the need for prophyctic treatment. Adequate instruction should be given o parents and children, or the condition would recur n two or three years.

Mr. J. G. TURNER said that extraction was necessary in order to get rid of sepsis. The need of the poor children of London for dental treatment was urgent. All the dentists in the British Isles would not suffice to do all the stopping which should be done. Myopia might result from dental sepsis, the sclera becoming affected by toxæmia or by the malnutrition which accompanied the condition.

Mr. GEORGE THOMSON, speaking of tuberculosis in school children, said that dental sepsis affected the child in two ways: (1) allowed the infection by pathogenic germs and (2) by resulting malnutrition. The school dental treatment scheme broke down because there were an insufficient number of dentists available. Treatment must be begun earlier. He had removed incisors in children of 15 months. The incisors of babies became denuded of enamel owing to the sugar-bag which was given them by their mother when going to sleep.

Mr. G. NORTHCROFT and the PRESIDENT also spoke, and Mr. STEADMAN replied.

MEDICAL SOCIETY OF LONDON.

EXHIBITION OF SPECIMENS.

A PATHOLOGICAL meeting of this society was held on Jan. 26th, Mr. V. WARREN LOW, the President, being in the chair.

Congenital Dilatation of the Ureter.

Dr. C. E. LAKIN showed two specimens illustrating Congenital Dilatation of the Ureter. The first consisted of the bladder, ureters, and kidneys, and was removed from a male child 17 days old, who had had a slight degree of hypospadis and phimosis. The ureters showed a high degree of dilatation, the lower part of the right ureter being as large as an adult cæcum. No difficulty was experienced in passing a probe through the orifices of the ureters where they opened into the bladder. The position of these orifices was unusual; not only did the right ureter enter the bladder at a higher level than the left, but both entered the bladder much nearer the fundus than usual. The bladder was not distended. The urachus was only partially obliterated. There was relatively only slight dilatation of the pelvis of the kidney, so that the specimen appeared to be described more correctly as one of congenital dilatation of the ureters than of congenital hydronephrosis. The second specimen was the right ureter and kidney, removed from a boy, aged 10, by Sir Alfred Pearce Gould. No obstruction existed at the lower end of the ureter. The boy had had a swelling in the right side of the abdomen most of his life, but latterly the swelling had increased in size. The patient made an excellent recovery. The ureter was enormously dilated, exceeding an adult colon in size.

Mr. E. PEARCE GOULD thought that the dilatation might be explained by increased intra-ureteric pressure brought about by the abnormal course of the ureters in the bladder wall.

Dr. FREDERICK LANGMEAD compared the condition to megalocolon, and to œsophageal dilatation, in each of which structural obstruction was often absent. Sometimes a group of such dilatations was met with in the same infant, and he thought their explanation lay in irregular muscular action of the involuntary muscle. He had removed after death a specimen closely similar to the first example shown by Dr. Lakin.

Dr. B. H. SPILSBURY agreed in ascribing the dilatation to abnormal neuro-muscular action. The dilatation in the first case was too great to have occurred after birth from mechanical causes, acting during so short a period as 17 days.

Status Lymphaticus.

Dr. LAKIN also showed two portions of intestine from a case of Status Lymphaticus. The patient was a girl, aged 7, who died while under anæsthesia about 15 minutes after the anæsthetic was begun. The specimens showed the usual enlargement of Peyer's patches and solitary follicles. There was enlargement, also, of the thymus and mesenteric glands, and the wall of the right ventricle of the heart was unusually thin.

Multiple Neurofibromata.

Dr. J. G. GREENFIELD showed some specimens from a case of Multiple Neurofibromata. During life the diagnosis of cerebral tumour at the cerebello-pontine angle had been made, and subtentorial decompression was performed by Mr. Donald Armour. Before the operation cutaneous neurofibromata were detected and led to the suggestion that the intracranial tumour was of the same nature. After death tumours were found on both acoustic nerves and on spinal nerves near the spinal cord. Another was connected with a semilunar ganglion. In the latter the nuclei of the tumour cells showed a "palisade" arrangement. In Dr. Greenfield's opinion neurofibromata originated from the sheath of Schwann, which explained why they are not found in association with the optic and olfactory nerves.

Congenital Heart Disease.

Dr. SPILSBURY showed the heart of a woman, aged 35 years, who had died from Congenital Heart Disease. There was sufficient patency of the ductus arteriosus to admit a finger. Spontaneous rupture of the pulmonary artery into the pericardium had occurred, and had been brought about by atheroma, which was visible at the margins of the tear. Old rheumatic disease of the tricuspid and pulmonary valves were associated.

Dr. SPILSBURY also showed a series of specimens illustrating sudden death from Pulmonary Embolism. In the subsequent discussion it was held that thrombosis of peripheral veins, and consequently embolism of pulmonary artery, occurred independently of sepsis.

Dr. SPILSBURY also showed a Coral Calculus from the Urinary Bladder.

Protein Reactions.

Dr. J. FREEMAN demonstrated the conjunctival and cutaneous reactions obtainable in patients who are susceptible to various proteins. In the case of hay fever it was shown that a diluted extract of grass pollen, if instilled into the conjunctival sac, produced a harmless and transient injection, while if a tip of a glass rod was charged with the pollen and rubbed into a square scratch in the skin an irregularly shaped wheal resulted. Quantitative testing could be carried out with known dilutions of the extract. Susceptibility to other pollens, to the protein of horses and other animals, and to various kinds of food, fell into the same group, and the symptoms varied only in accordance with the anatomical position to which the disturbing protein was applied. Thus, the severe vomiting and diarrhœa which prostrated some persons who ate eggs or strawberries was of the same nature as the prostration and catarrhal changes in the upper respiratory passages in hay fever. The tests were specific and denoted which was the particular protein to which a patient was susceptible. Experiments had shown that when a susceptibility to a protein was encountered in an individual other members of the same family often showed a susceptibility to other proteins. With regard to the pollens, that of grass was the only one of importance, though certain persons were susceptible to others. This was explained by its abundance and its lightness, the others being relatively much heavier. Another method of employing the test was to precipitate the protein to be tested out of a watery solution by an excess of alcohol. The solution was then filtered and the filter-paper with its attached precipitate dried. A small square of this paper, protein-side downwards, if superimposed on a scratched surface, gave the cutaneous reaction. Only sufficient protein to give the faintest opalescence to the solution was enough to give the reaction.

Dr. A. FLEMING demonstrated the methods of testing donors' blood in the technique of blood transfusion.

Mr. DONALD ARMOUR showed specimens of (1) Right Frontal Abscess following a gunshot wound of the right orbit in which suppurative meningitis had been limited to the *left* vertex and base; (2) Scirrhus Carcinoma of the male breast; (3) Renal Abscess. The case was one of a group which had been under his care during the time when perinephritic suppuration was prevalent. His cases supported the contention of those who held that the suppuration around the kidney was secondary to infection of the kidney itself.

SOCIÉTÉ DE THÉRAPEUTIQUE DE PARIS.

AT a recent meeting of this society Dr. C. SCHMITT read a paper on

Radium and X Rays.

Of eight cases of cancer of the uterus treated by him with radium since last March four had made so much improvement that they regarded themselves as cured; one patient was in a very satisfactory condition, one had been lost sight of, the seventh was progressing favourably though the treatment had been very irregular, and the eighth case had survived more than five years. He agreed with Béclère in regarding radiotherapy as applicable to all uterine fibroids, apart from certain cases in which urgent operation was required.

In a communication on

Biological Medication,

Dr. A. DARIER discussed the action of normal and antitoxic serum, vaccines, and all biological agents such as exudates, filtrates, tissue extracts, organic fluids, bacterial cultures, and colloids. He dealt particularly with hypodermic injections of cow's milk, which were first employed by Muller and Thanner of Vienna in 1916 and had yielded good results in the treatment of gonorrhœal arthritis, eye diseases, especially iritis, articular rheumatism and influenza. The action of parenteral injections of milk, peptone, and nucleins was partly to be explained by the febrile reaction caused by introduction into the blood-stream of a foreign albumin and partly by the stimulation of leucocytosis and phagocytosis. In severe infections Dr. Darier had derived much benefit from the combination of injections of diphtheria antitoxin or polyvalent serum with injections of milk. As the latter could only be given every other day owing to the febrile reaction which they caused, he gave on alternate days an injection of serum which had a sedative and analgesic action in addition to its power in combating infection. He had found that the alternate use of injections of milk and serum greatly reduced the frequency of serum complications.

In a paper entitled

The Legend of Arsenic in Dermatology,

Dr. CARLE (Lyons) said that when a drug enjoyed such a persistent and general vogue as arsenic, the vogue could generally be explained by the following: (1) The influence of authority; (2) the knowledge of precise experimental facts proving its action; (3) clinical observation of numerous well-established cures. The revival of arsenic in therapeutics dated from the beginning of the nineteenth century with Fowler, Pearson, Monro, and Willan in Great Britain. Biett, who introduced Willan's doctrine into France, became an ardent supporter of the drug, and his enthusiasm was shared by Cazenave, Rayer, and Devergie. The reaction commenced in the second half of the century with Hillairet, who declared that arsenic was not a specific for any form of eczema, or, indeed, for any skin affection. Almost at the same time Vidal denied arsenic any therapeutic value, and Baumès, the dermatologist of Lyons, stated that though he had seen some improvement and a few cures, he had witnessed a large number of gastric and intestinal complications. In German-speaking countries arsenic was as much ignored as any other internal medication in dermatology, both the school of Unna and that of Hebra regarding it as unnecessary and dangerous. Besnier, Brocq, and Audry also protested against the abuse of arsenic in the treatment of skin disease. It was therefore clear that the leaders of French dermatology were not responsible for the vogue which arsenic enjoyed in France. Dr. Carle next showed that experiments had not proved the favourable action of the ingestion of arsenic either on the skin or on the general condition. In his practice he had found that treatment of skin affections with arsenic, often in large doses and for a long period, yielded no appreciable result. Comparison with the results obtained by the local use of coal-tar preparations had been so much in favour of the latter that since 1905 he had never given

a single dose of arsenic in cases of eczema, psoriasis, para-keratosis, lichen, or other skin conditions. He concluded that the reputation of arsenic was in great extent due to its having been used in cases such as erythema, herpes, pityriasis rosea, and other cyclical dermatoses which had a tendency to spontaneous recovery, and also to the demands of the patient, who was convinced of the value of an internal remedy.

In a paper on

The Dangers of Autoserotherapy,

Dr. VICTOR CORDIER (Lyons) related the case of a soldier, aged 26, admitted to a tuberculosis ward with slight lesions of the right apex, and a painless swelling, the size of a large hazel nut, in the abdominal wall. The patient had been treated by autoserotherapy for tuberculous peritonitis five years previously. On incision the swelling proved to be a cold abscess containing tubercle bacilli. Dr. Cordier concluded that autoserotherapy was not merely a useless, but also a dangerous, method. Similar accidents had been recorded after pleural autoserotherapy.

Dr. H. BOURGES reported a case of

Intoxication by Syrup of Belladonna

in a child aged 14. He alluded to a similar case, published by Merklen, in a child of the same age, after taking the syrup prepared according to the French Codex of 1884. Although the Codex of 1908 had reduced the quantity of active principles contained in the syrup by a third, its administration was not yet free from danger, even when given in small doses at a time and well diluted. The present patient was a girl, the subject of pulmonary tuberculosis, suffering from frequent spasmodic cough and night sweats. 15 g. of syrup of belladonna in 120 c.cm. of water were ordered to be taken every 24 hours in small doses. After the first few doses the child became very restless, complained of headache and dryness of the throat, and kept calling for something to drink. On his visit next morning Dr. Bourges found her neck, face, and trunk covered with a pruriginous scarlatiniform eruption. The pupils were dilated and sluggish in reaction. The urine was scanty and red. The temperature was 103·2°, the pulse 130, and the respirations rapid and laboured. The medicine, which had been given throughout the night, was stopped, and 48 hours later the rash disappeared. On the third day all the symptoms had subsided.

NORTH OF ENGLAND OBSTETRICAL AND GYNÆCOLOGICAL SOCIETY.—A meeting of this society was held at Manchester on Jan. 16th, Mr. Miles H. Phillips (Sheffield), the President, being in the chair.—Mr. W. Blair Bell (Liverpool) showed a specimen of Diverticulum of the Bladder with Cystitis. The diverticulum was adherent to the right ovary and was undoubtedly congenital.—Mr. Carlton Oldfield (Leeds) had often observed cases of diverticula of the bladder, but in no case had infection occurred. He suggested that a portion of the bladder wall might have been pulled out by inflammatory tissue in the neighborhood of the right uterine appendage; but Mr. Bell, in reply, did not think this probable.—The President demonstrated a specimen of Adenomyoma of the Recto-vaginal Septum in a multipara aged 45. A tender nodular cystic growth occupied the posterior fornix and presented a small area of papillary growth. No connexion with the cervical mucosa could be demonstrated. He had operated on more than 20 of these cases and considered them to be of inflammatory origin.—Dr. H. Leith Murray (Liverpool) recalled a case of adenomyoma presenting unusual features, and contributed to the society by the late Dr. Wallace in 1914.—Dr. D. Dougal (Manchester) described two cases on which he had performed Cæsarean section for Dystocia, due to (*a*) uterus bicornis unicollis and (*b*) ventrofixation, or adherent myomectomy scar. In the first case the non-pregnant horn of the double uterus lay within the pelvic brim and caused obstruction. The second patient had a myomectomy performed four years previously. The anterior uterine wall was firmly adherent to the parietes, the exact cause of which could not be definitely ascertained. The posterior uterine wall had become enormously hypertrophied and had pulled the cervix upwards and backwards to the level of the sacral promontory. Owing to the fixation the Cæsarean incision had to be made through the posterior uterine wall, and a few days after operation a coil of small intestine lying in the pouch of Douglas became adherent to it and caused acute intestinal obstruction. This was remedied at a second operation, and the patient then made a good recovery.—Dr. W. W. King (Sheffield) showed microscopic sections of a Spindle-celled Sarcoma which appeared at the lower end of a colporrhaphy wound within one month of operation, and was apparently cured by Coley's fluid.—The President thought the appearance of the section very suggestive of granulation tissue.—Dr. A. Donald (Manchester) said that the clinical picture in this case did not seem to be altogether in favour of sarcoma, and that diagnosis by microscopic examination was sometimes very difficult.—Dr. King, in reply, thought that the rate of growth was too rapid for granulation tissue. He would keep the case under observation and make a further report in six months' time.—Mr. Oldfield described a case of Hydatid Mole with bilateral ovarian cysts and toxæmia. The patient was a multipara aged 36. Her husband had contracted syphilis a year previously, and she herself had a positive Wassermann. Severe toxæmia with albuminuria developed suddenly. On examination the uterus was found retroflexed and the size of a 3½ months pregnancy. Seven days later the uterus reached the costal margin. Abdominal pain and tenderness, and marked tachycardia were present, and her general condition was grave. There was no external hæmorrhage, and the cervix was closed. Under an anæsthetic the uterus was emptied, and the contents found to be a hydatid mole. There was practically no hæmorrhage during the operation. During the pelvic examination at the time of operation bilateral ovarian cysts were discovered, the left being apparently the size of two fists. The patient recovered rapidly, and the ovarian cysts decreased, until three months later they had entirely disappeared.—Dr. W. E. Fothergill (Manchester) mentioned a case of hydatid mole, in which severe symptoms of toxæmia had necessitated his removing the uterus. However, toxæmic symptoms persisted and caused death two months later.—The President related a case where a large cervical fibroid caused severe hæmorrhage ten years after the climacteric. The patient, a spinster aged 57, had a quite sudden profuse hæmorrhage, which was only controlled by packing the vagina. A pelvic tumour had been known to exist for years, but had caused no recent discomfort. Hysterectomy was performed; the uterus was atrophied, but the cervix was lengthened to over 6 in., and extremely thinned by a large cervical fibroid. Under the cervical mucous membrane covering the lower pole of the tumour were many large veins, and it was considered that rupture of one of these had led to the profuse bleeding.

NOTTINGHAM MEDICO-CHIRURGICAL SOCIETY.—At a meeting of this society held on Jan. 21st, Dr. W. Rowe being in the chair, Dr. C. H. Cattle read a paper on Cardiac Affections and the War. He said that the condition we speak of as "soldier's heart," though well known in medical literature, had now for the first time in the history of our country become familiar to every practitioner. The principal symptoms were said to be palpitation, breathlessness, cardiac pain, and giddiness. The chief causes were some infective illness, especially rheumatic fever, and the physical and mental strain of warfare. Half the cases of this affection, for which the term "effort syndrome" is an apt description, were taken from light occupations. As so many men were unable to bear strenuous exertion in civil life, the conditions of military service might be said to have rather brought out a latent tendency than to have caused this condition. Methods of identifying the commoner forms of irregularity of the heart were described. Drugs, with the exception of bromides, were comparatively useless in the "effort syndrome." The most successful method of treatment was the system of gradual physical training in a special institution, introduced by Dr. Thomas Lewis. Some of these men had systolic murmurs, but the murmur per se was found to be no bar to the attainment of a high standard of physical endurance. The general adoption of the exercise test was considered to be the greatest advance made in the examination of cardiac cases as a result of the experience of the war. The following conditions call for rejection for the army: enlargement of the heart, mitral stenosis, aortic regurgitation, aneurysm, repeated attacks of rheumatic fever, failure to pass a strenuous exercise test. A systolic murmur, in the absence of enlargement of the heart or of symptoms, is far more often functional than organic. Aortic stenosis without regurgitation is rare. The murmurs of mitral regurgitation cannot be distinguished from other systolic murmurs at the apex. But this affection, even if its existence could be proved, may be compatible with many years of useful and even strenuous life. On the contrary, the tendency of mitral stenosis and aortic regurgitation is to get steadily worse.

THE present year is the centenary of the opening of the Cornwall County Asylum, which took place on Oct. 25th, 1820, when the first patient was admitted. It is hoped that the event will be subsequently commemorated in some appropriate manner.

Reviews and Notices of Books.

THE TRANSMUTATION OF BACTERIA.

By S. GURNEY-DIXON, M.A., M.D. Cantab., M.R.C.S. Eng., L.R.C.P. Lond. London: Cambridge University Press. 1919. Pp. xviii. + 180. 10*s*. net.

TO-DAY a prominent problem of the bacteriologist is what constitutes a bacteriological species, nor can this problem be solved until he has determined what are the limits of the variability of bacteria. It is a problem that has been with us from the very beginning of bacteriology as a science. Ray Lankester was one of the first to draw attention to the subject in his studies of the *Bacterium roseo-persicinum* in the "seventies." Hueppe and Cartwright Wood, Roger and Charrin in the "eighties," Adami and others in the 'nineties"—all called attention to the position, but the routine bacteriologist was satisfied to find that the majority of pathogenic bacteria, when isolated and grown upon the accepted media of the laboratory, gave the regulation reactions. For him forms which departed from type could not be accepted as proper members of the species and merited no further inquiry. With Koch and the German school in general he was a firm believer in the fixity of bacterial species. To-day, with the elaboration of bacterial technique and the consecutive examination of not an odd dozen but of a hundred or more strains, subjecting each not to two or three but to a score or so precisely adjusted reactions, he is forced to see that there is an extraordinary amount of variability, in morphology, in cultural characteristics, and in biochemical properties. Even with forms which in their morphology and cultural characters appear to be identical there may be in the matter of the fermentation of saccharoids—sugar, glucosides, and the lower alcohols—as many distinct strains as there are permutations of a series of a score of numbers.

Dr. Gurney-Dixon has performed a timely service in bringing together a large mass of data bearing upon this matter of bacterial variation and the allied question of mutation or transmutation—i.e., of the sudden development, in the course of cultivation of any one species of bacteria, of forms which diverge strikingly from type, and maintain the divergence in subsequent culture. The work, admittedly, is not complete: it is based upon British bacteriological literature; it does not pretend to present the parallel observations contained in French and German literature; nor is any account taken of the abundant and valuable observations made in the United States. Even in respect to British literature this book only includes material collected before the war; and important and more recent observations by British observers published outside Great Britain, such as those of Thiele and Embleton, are passed over in silence. It is, therefore, very far from a complete presentation of this subject. Yet admitting this, it has also to be admitted that a study of this other literature would not materially have altered the conclusions reached by the author, and those conclusions are conservative. Particularly in his own investigations, Dr. Gurney-Dixon shows himself to possess a wise scientific caution.

But what must impress the reader, both in reviewing the earlier literature and in connexion with the author's own researches, is that the methods employed thus far are, with rare exceptions, inadequate to afford a sure solution of the problem. Particularly is this the case in the study of chance variations, or "sports." If we cannot, on the one hand, reproduce the conditions under which these develop, on the other we cannot convince ourselves that these originate from individuals belonging to type strains. Unless we start by securing growth from a single microbe we cannot be sure that we have not been dealing with a mixed culture. Now such growth from a single organism was not undertaken in the observations here recorded. Even to-day, by the employment of Barber's method or a modification of the same, it is a matter bristling with difficulties, and until those difficulties are overcome we cannot be sure of the results; we deal in probabilities, not in certainties. With impressed variations the case is different; by subjecting all the members of what is presumably a pure culture to the same alteration of environment we can induce, and that constantly, the same alterations, whether in morphology or in individual properties. But even here difficulties occur; it is not so easy as it would seem to subject all parts of a fluid or solid suspension of bacteria to identical conditions. And when we succeed we are met with the likelihood that the variation induced will only be transient. The very lability of constitution which with alteration of environment favours variation is apt to favour reversion to type when there is return to the original environment. Thus we have still to discover the laws—if they exist—governing the permanent alteration in the constitution of the bacterial protoplasm and production of permanent species instead of transient variants.

This book might well induce some young well-equipped bacteriologists to take as their central work the study of bacterial variability and of what constitutes a bacterial species.

THE OPERATIONS OF OBSTETRICS.

Embracing the Surgical Procedures and Management of the more Serious Complications. By FREDERICK ELMER LEAVITT, M.D., formerly Assistant Professor of Obstetrics and Gynæcology, University of Minnesota, &c. London: Henry Kimpton. 1919. With 248 illustrations. Pp. 466. 30*s*.

IN this work the author presents the subject of obstetrics from the operator's point of view, only enough pathology and physiology being introduced to give reason for and insight into the various procedures described. The indications given for pubiotomy are good and sound, and we notice that the author, even when such indications are present, thinks Cæsarean section generally the better operation. Hardly enough space is devoted to internal and external podalic version, and nothing is said of the great advantage of performing the major part of this operation by the abdomen. The section on version is, however, on the whole good, and the illustrations excellent. The chapter dealing with the midwifery forceps is also full and good, although we think the author might have laid more stress upon the many advantages of the axis-traction forceps. It is a pity that the term cranioclasis is used for the simple operation of delivering the perforated head by the cranio-tractor or craniotomy forceps, since this term in most books is definitely applied to the procedure of removing the vault of the skull. We cannot agree that craniotomy need not require more skill than a forceps delivery; a difficult craniotomy calls for a considerable amount of skill, and may be a very formidable and difficult operation. It is curious how many American authors seem to be unacquainted with Ramsbotham's decapitating hook, a much better and easier instrument to use than Braun's hook. In discussing the results of the operation of Cæsarean section no mention is made of the very valuable series of statistics collected by Amand Routh.

Dr. Leavitt apparently is not in favour of the now general treatment of rupture of the uterus by abdominal section, although this would seem to be the now recognised method; and when suitable means are taken to combat the shock, and with the more general use of spinal anæsthesia, this procedure would seem to hold out a prospect of giving good results in the future. The section on accidental hæmorrhage is disappointing, and we are surprised to find the author advocating accouchement forcé in view of the disastrous results obtained in this way. No mention is made of the good results obtained by plugging the vagina, as practised at the Rotunda Hospital; nor does the author appear to be acquainted with the excellent results following the Dublin method of treating eclampsia; nor that the method of non-intervention advocated by Stroganoff gives the best results of all—namely, a mortality of only some 6·6 per cent., as against the mortality of 13·5 per cent. among cases treated by rapid emptying of the uterus.

The book is an interesting one, and should prove useful to those for whom it is written.

REST AND SUGGESTION,

And other Therapeutic Measures in Nervous and Mental Diseases. Second edition. By FRANCIS X. DERCUM, M.D., Ph.D., Professor of Nervous and Mental Diseases in the Jefferson Medical College, Philadelphia, &c. London: Kegan Paul, Trench, Trübner, and Co. 1919. Pp. 395. 21*s*.

WE suppose most members of the profession in actual practice are conscious of a feeling of dissatisfaction in their methods of handling patients with functional nervous disease in any of its multiple forms. Conscious as he is of ever working against time, the busy man, if he is honest with himself, nevertheless hates to dismiss the functional case with a pat on the back and a prescription for a tonic. He has heard of the newer ways of treating such cases by year-long analysis or daily suggestion, but is only too well aware of his comparative ignorance of these therapeutic means, and he fears to step in. At the same time he is unwilling to send the neurotic patient away and the result is an unsatisfactory compromise benefiting neither. A little orientation in the practical principles of rational psychotherapeutics would materially aid him in his daily round. For that he might with advantage turn to Professor Dercum's volume, which lays emphasis on (1) purely medical treatment; (2) simple physiological methods, such as rest and feeding; and (3) the separation of the wheat from the chaff in the chaotic state of present-day psychotherapy. The hysteric, the neurasthenic, the psychasthenic, are dealt with individually along lines which any intelligent practitioner can readily follow, and on principles easily applicable to particular cases. A full consideration has also been given by Professor Dercum to "mind cure," "faith cure," Christian science, and mystic and religious methods generally, each procedure being subjected to a critical analysis.

We appreciate the therapeutic wisdom so amply revealed in the book and cordially commend it to the profession.

PSYCHOLOGY AND THE DAY'S WORK.

A Study in the Application of Psychology to Daily Life. By EDGAR JAMES SWIFT, Professor of Psychology and Education in Washington University, St. Louis. London: George Allen and Unwin, Ltd. 1919. Pp. 388. 10*s*. 6*d*.

WHY WE DO IT!

Psychological Gossip. By R. MCMILLAN. London: T. Werner Laurie, Ltd. 1919. Pp. 218. 6*s*.

THE art of popularising psychology has advanced much farther in America than in this country. Professor Swift is a scientist, and his style is that of a university lecturer; Mr. McMillan has also lived in the atmosphere of an American university, and has derived much of his wisdom from Hugo Munsterberg, though a life of travel and journalism has made a deeper impress on his writing. But both these authors have in their separate ways set out to accomplish the same task—to reveal to the uneducated in psychology what this science has to teach men about themselves. Professor Swift speaks of us as adapting ourselves by the method of "trial-and-error," and has some severe things to say about the small part which reason has played in the development of the science of medicine up to the beginning of the scientific period. "Systems of medicine—if the philosophical and religious view of diseases and their cures may be so dignified—followed one another as philosophy and religion changed. Medicine, like other beliefs, rested on authority. Systems were respectable or disreputable. Massaria of Padua, in the sixteenth century, would rather be wrong with Galen than right with any other physician. One system was used until another was thought to be better, though at that time the trial-and-error judgment was guided more by the underlying philosophical belief than by the results of the treatment." And although the scientific method of investigation and experiment is now with us the old trial-and-error method still continues "the chief method of modern man."

Mr. McMillan states the same case by concluding that we are automatous. His arguments are not convincing, except when they are taken from the mouths of his teachers, for his own mind is not always clear. He has grasped the fact that the word psychology "has a lot of meanings" (p. 135), but not with sufficient force to save himself from using it in two different senses on p. 19, when he attempts to define the word for his readers' benefit. But what his work lacks in definition it supplies in entertainment. Why do people throw an old slipper after a newly married couple? Why do people "touch wood" when they fear evil? Such are the problems which interest him, and in attempting the elucidation of such problems as these we learn that "when Rhadamanthus was King of Crete he passed a law that nobody should swear except by the dog, the goose, or the plane tree." How many of us knew this? Or that "amongst the laws that Hammurabi found in Babylon was one that if a man got drunk and did any damage the keeper of the wine-shop where he got intoxicated was held responsible"? This is not serious psychology perhaps, but it is not intended to be so.

LEHRBUCH DER AUGENHEILKUNDE.

Third edition. By Dr. PAUL RÖMER, Professor of Ophthalmology at the University of Greifswald. Berlin and Vienna: Urban and Schwarzenberg. 1919. With 297 illustrations and 32 coloured plates. Pp. 496. 30 marks.

THE author dedicates this edition of his text-book to the memory of his pupils who have fallen in the war, and states that he has abridged it as far as possible owing to the necessities created by the war. As compared with English text-books of similar size, it is fuller in some parts, as in the section dealing with phlyctenular disease, which is rightly treated as only one part of a general condition depending on defective nutrition; less full in others, as in the chapter on glaucoma, in which we miss any account of the early changes in the visual fields which are so important in diagnosis, while the operative treatment of the disease is dealt with in a manner quite inadequate to its importance.

The book is copiously illustrated in a way which will appeal to the student, while in some instances the illustrations are of value to the ophthalmologist. We may give as examples the coloured plates of blue punctate cataract, of the microscopic section of the choroid in sympathetic cyclitis, and of the ophthalmoscopic picture of colloid excrescences of the lamina vitrea. This last picture, by the way, appears twice, as do certain others of the figures in the coloured plates. Adaptation of illustration to text is not as exact as it should be; in the pictorial representations of the operation for cataract the corneal incision is shown far too large, as is also the iridectomy, although the description in the text is correct.

PRACTICAL PHYSIOLOGICAL CHEMISTRY.

For Indian Medical Students and Clinical Assistants. By C. C. CALEB, M.B., M.S. Durh., Professor of Physiology, King Edward Medical College, Lahore. London and Calcutta: Butterworth and Co. 1919. Pp. 252. Rs.6 net.

THE author states in his preface that his book is founded on his lecture notes, and that considerable use has been made of several other books on the subject. Consequently the book presents no essentially new features, and we can easily trace the parent books. The routine of most physiological laboratories is followed, but the author gives rather more than the usual space to the explanation of the various reactions and their physiological and medical significance. This is the best feature of the book, for the explanations are very clear, and must be of value to the student. Reference is rightly made to Indian foodstuffs. As the title indicates, the book is intended for Indian medical students, but it should prove useful to others. We are glad to see a copy of this book, for it shows how carefully Dr. Caleb has taught his students at the King Edward Medical College, Lahore, and we very much hope that a similar course is given in other Indian medical schools.

JOURNALS.

Science Progress. January, 1920. London: John Murray. 6*s.* quarterly.—The work of the late Dr. Charlton Bastian on the question of the possibility of the formation of living organisms from non-living matter is referred to in the January number of *Science Progress*, where there appears a short article by his son, Surgeon-Commander W. Bastian, R.N. In this he draws attention to the fact that in answer to his letter to THE LANCET in May last several letters appeared, but that few were from those who had done any experimental work along the lines laid down by Dr. Bastian, and he urges that a series of experiments should be undertaken on the exact lines described in Dr. Bastian's book, "The Origin of Life." The matter is well worth considering, for many of the objections to the reception of these ideas were based on theoretical reasons.

Maternity and Child Welfare.—The January number of this journal contains a cartoon the motto of which apparently embodies its policy for 1920—"Let's start fair." It contains the usual "20 minutes' talk to mothers," which this month explains lucidly and concisely the somewhat complex duties of the Minister of Health. An interesting account of the satisfactory results obtained by home subsidies, rest homes, and hostels in Liverpool is given by Dr. Ruby McBirnie. Miss Maud Higham writes pleasantly on "The Art of Story-telling," while Miss Jessie Allan deals fully with the subject of the mother in industry from the standpoint of a welfare worker, estimating both the value of the mother to the employer and the value of the employment to the mother. The Conference on Child Welfare in South Africa recently held in Durban is commented on editorially, and the opening address by Dr. Charles Porter, M.O.H. of Johannesburg, and a paper on "The Duties of a Health Visitor in South Africa" are quoted at greater length. The journal's French correspondent describes the municipal creche at Tours, the new maternity centre at Creusot (Saône et Loire), and discusses the secret lying-in hospital recently established at Lyons in connexion with the whole problem of secret confinements. Other features in an interesting issue are articles on women's institutes, the economics of child welfare, and the colony of Serb babies in Corsica.

American Journal of Ophthalmology. May to November, 1919.—Of several articles we select the following for comment.—May: Heydt Fundus Pathology with the Red Free Light of Vogt. A new method of ophthalmoscopy has been devised by means of a lamp with filter apparatus, giving a red free light. The greater part of the fundus looks blue with the vessels showing black, but the macular region is yellow. The nerve striations of the retina are rendered visible and changes in them can be detected in cases of retinitis and optic atrophy which are invisible by the ordinary method of examination. In albinos the yellow appearance of the macula is not seen, showing that this has a direct or indirect relation to the lack of pigment in general. It is claimed that the red free light affords the only objective method by which some cases of retro-bulbar neuritis can be diagnosed. The new method will probably have an important future, but it is one that requires to be learnt, even by the expert in ordinary ophthalmoscopy.——June: The article by H. H. Briggs on Hereditary Congenital Ptosis, with report of 64 cases conforming to the Mendelian rule of dominance, has already been noticed in these columns.[1]—A. B. Middleton contributes some interesting drawings (plain and coloured) of congenital conditions of the fundus found during the routine examination of 200,000 troops.—W. McLean writes on his new form of tonometer, which has excited considerable interest in this country, and J. N. Evans shows a test type suitable for young children.——The July number has several interesting articles. C. A. Clapp: Detachment of Retina in Eclampsia and Toxæmia of Pregnancy. Six cases were seen during a period of 18 months in a lying-in hospital at Baltimore. Full reports are given with illustrations, which show the detachments to have been in all cases very definite. Clapp is of opinion that if ophthalmoscopic examinations were generally made in these cases detachment would be discovered far more frequently than heretofore recorded. The prognosis is exceptionally good. In all his six cases reattachment took place with normal fields of vision.—F. A. Conlon: Conjunctivitis due to Food Anaphylaxis. "It has long been known that certain foods when eaten by individuals peculiarly sensitive or anaphylactic to these foods develop certain symptoms or ill-effects. Among the better known disturbances are urticaria, eczema, vaso-motor rhinitis, angio-neurotic œdema, and bronchial asthma." Conlon gives good evidence to show that conjunctivitis must be added to the list. In his cases strawberries, tomatoes, eggs, and flounders have been the culprits. To diagnose the offending foods he used the protein skin test devised by J. C. Walker, in his investigation of the cause of bronchial asthma, for details of which the original paper should be consulted.—R. P. Luna: Ocular Lesions consecutive to the Injections of Anti-typhoid Vaccine. There appears to be good evidence that anti-typhoid vaccination may be the occasion of certain eye troubles to which the patients have a predisposition or from which they have already suffered. The most typical of these appears to be herpes febriles corneæ, and there may be a similar relation to cases of irido-cyclitis. He concludes that it is not prudent to vaccinate luetic, tuberculous, and rheumatic subjects who have previously had lesions of the uveal tract.—Lloyd Mills: The Effects of Faulty Cranio-spinal Form and Alignment upon the Eyes. Severe ocular imbalance is found more commonly among cases which are primarily orthopædic than among average eye cases. In this article a connexion is traced between right- (or left) handedness and cranial asymmetry, spinal curvature, hyperphoria, and corneal astigmatism. The logical applications to preventive medicine are (*a*) that ambi-dexterity must be insisted on during the infantile period and the plastic developmental years, and (*b*) the importance of the early recognition of spinal defects and of their cure in youth by the orthopædic surgeon.——August: Dr. Duane's article on the Eyes of the Signalman has already been noticed.[2]—Allen Greenwood: The Organisation and Activities of the Ophthalmic Service in the American Expeditionary Forces. Detailed suggestions for the improvement of the service are made.——September: An Operation Relegating Enucleation of the Eye to its Proper Position. The operation described is a modified Mules's operation, the chief modification being that a window is cut in the back of the sclera, through which the optic nerve is divided. A channel for drainage being thus obtained, it is found that the gold ball inserted into the scleral pocket is not subsequently extruded.—Harvey J. Howard: A Test for the Judgment of Distance. This article has importance in relation to aviation. Of the several factors which contribute to the correct judgment of distance, some are independent of binocular vision, others are not. In comparing the relative ability of different individuals in this respect the factor of binocular parallax was found to be the most important. To test this an apparatus modified from one devised by Brooksbank James in 1908[3] is described.——October: Edward Jackson and W. C. Finnoff: Tuberculosis of the Retina. Interesting drawings of a case occurring in an adult are given.—John Green, jun.: Treatment of Dacryocystitis by Curettage Supplemented by Immediate Rapid Dilatation of the Lacrimonasal Duct. The periodical appearance of new methods of treatment for this trying condition indicate that no finality has yet been reached.—L. Webster Fox: A New Operation for the Relief of Conical Cornea. This consists in excising a portion of cornea and suturing the flaps. A special forceps is figured for holding each corneal flap while inserting the sutures.——November: A. B. Middleton: Macular Hole in the Retina.—E. E. Maxey: Hole at the Macula. These two papers are illustrated by several figures showing examples of this condition

[1] THE LANCET, 1919, ii., 258.

[2] THE LANCET, 1919, ii., 619.

[3] THE LANCET, 1908, i., 1763.

found in the one case during the routine examination of recruits for the U.S. army, in the other at a base hospital.—S. G. Higgins: Visual Disability from Eye Injury and Compensation. Certain questions were put by the Industrial Commission of Milwaukee to the Oto-Ophthalmic Society of that State, the answers to which will be of interest to those in this country concerned with the same problems. Compensation, they say, should vary with character of employment, and they publish a table suggesting that on the average useful vision is diminished by 3 per cent. for every 10 feet disability to read the Snellen chart, so that, for instance, vision of 20/40 would imply 94 per cent. ability, while 20/350 would imply 1 per cent.

La Semana Medica, of Buenos Aires, for Dec. 4th, 1919, contains an article by Dr. Angel Bianchi Lischetti, professor of zoology and comparative anatomy and physiology at Buenos Aires, which may prove to have an important bearing on the question of malaria prevention. The article bears the title, "Un Verme del Genero Planaria, Enemigo Natural de las Larvas del Mosquito" (a worm of the genus Planaria, a natural enemy of mosquito larvæ), and describes a series of observations of extraordinary interest. Being desirous of accumulating a reserve of "plancton" to serve as food for mosquito larvæ whose biology he was studying, Professor Lischetti placed in a large glass vessel a quantity of water containing vegetable growth of various kinds and small animals, taken from the tanks in which aquatic plants were growing in the Botanic Garden of the Faculty of Agronomy and Veterinary Science at Buenos Aires. On examining this water he noticed that, though offering excellent conditions for the development of mosquito larvæ, it contained exceedingly few larvæ or nymphæ, many of the samples containing none at all. This was at first attributed to the presence of frogs and toads in the tanks. At the end of December, 1918, 30 larvæ of *Ædes Calopus*, four days old, were placed in the glass receiver with a view of obtaining adult larvæ. Two days afterwards on looking for the larvæ, which it was expected to find fully grown, no trace could be found of them. On Jan. 10th, 1919, a large number of eggs of *Ædes Calopus* were found on the sides of the receiver close to the water surface and among filamentous algæ. Daily watch was kept on the receiver in order to determine the date of appearance of the larvæ. None having appeared by the 18th, some of the eggs were examined microscopically and found to have undergone normal hatching. The complete disappearance of the larvæ in this case suggested the possible presence of some natural enemy to them, and it was decided to investigate the matter from that point of view. On Jan. 25th, at 4 P.M., 30 culex larvæ were placed in the receivers. The next day only three of these were found alive, and these had disappeared at 8 A.M. on the 27th, leaving behind only a few heads, some stigmatic tubes, and fragments of the chitinous covering—that is to say, the hardest parts of the animals' structure. A thorough examination was then made of the fauna and flora of the water in the receiver and, among other species, the constant presence was noted of a species of worm of the genus planaria. The fact that the larvæ, if small, disappeared entirely and, if larger, left behind only the hardest and most resistant parts of their anatomy, led to the inference that they had been devoured by the planaria, this being the only animal present large enough and active enough to be capable of the feat. On Feb. 28th six of the worms and ten culex larvæ were placed in a vessel full of drinking water. At 8 A.M. next day only three larvæ remained alive; the heads of four others were found, and by 7 P.M. the three that had survived the night were no more. In view of this result experiments were made with a view to determining the method and the rate of destruction wrought by the planaria. On March 5th six planaria individuals having been placed in a vessel containing 100 c.cm. of drinking water, batches of larvæ varying in numbers were introduced in succession into the vessel.

The following table shows what happened:—

4	P.M.		introduced	5	larvæ.
4.10	,,	remained 2	,,	10	,,
4.25	,,	,, 4	,,	22	,,
4.50	,,	,, 3	,,	11	,,
5.10	,,	,, 5	,,	16	,,
6	,,	,, 7	,,	22	,,
6.30	,,	,, 5	,,	9	,,
6.45	,,	,, 3	,,	13	,, (2 large).
8	,,	,, 2 (large)		108	

Six planaria individuals, therefore, disposed in four hours of 106 larvæ, the sole survivors being 2 large ones. Large larvæ were found throughout the experiments to withstand with comparative ease the attacks of the planaria. As it appeared probable that the destructive powers of the planaria would be diminished after an abundant ingestion of larvæ, the six were placed at 8.30 in a vessel containing 200 culex larvæ. Immediately on their introduction, however, the planaria commenced a hunt, the details of which were watched until 10 P.M. It was observed that after devouring several larvæ a planaria would remain at rest for some ten minutes and then renew the chase. Next morning most of the larvæ had disappeared, no normal larvæ could be seen, those that remained either adhering together in clumps or lying motionless at the bottom of the receiver. The following description is given of the method of attack adopted by the planariæ. They live under water, creeping about the sides of the receiver or close to the surface of the water. They reach the bottom of the receiver either by creeping down the sides or by letting themselves sink through the water by gravity. To reach the surface they always creep up the sides or up submerged objects. The presence of culex larvæ seems to cause a kind of excitement, for directly they are placed in a receiver containing planariæ, the latter begin to quarter the surface of the water in all directions, attaching themselves in an inverted position to the under surface of the pellicle formed by the surface tension of the liquid. The attack is delivered at the moment in which the larva, in order to breathe, applies its stigmatic tube to the surface of the water and remains for an instant immobile. If at this moment a planaria passes the spot it applies to the stigmatic tube one of the lateral lobules of its head, and the larva remains adhering thereto, owing to a viscid secretion which covers the body of the planaria, only well-developed larvæ being able, owing to their greater strength, to escape, which they do by a violent wriggling movement. In many cases, even when the larva has succeeded in tearing itself free, it is seen immediately to arch itself in an endeavour to remove with its mouth the matter adhering to its tube, when it frequently happens that mouth and tube remain glued together, and the larva, unable to move, falls to the bottom and dies asphyxiated. As soon as a planaria has succeeded in attaching itself to a larva it proceeds to twine itself round the latter's body by a helicoidal movement, the victim endeavouring by violent movements to free itself, but not succeeding. The planaria and larva, now leaving the surface, fall to the bottom of the receiver and the former places itself over the body of the latter, and immediately evaginates from its median ventral segment its retractile pharynx, inserts it between two segments of the larva and passes it interiorly along the whole length of the latter's body as a finger is passed into a glove. It is then withdrawn, bringing with it the whole internal economy of the larva and leaving nothing behind but its empty chitinous envelope. Often, and especially when the number of larvæ is small in relation to the number of planariæ, if one of the latter has made a capture, others hurry up and endeavour to carry off the victim. Adult larvæ and nymphæ almost always escape, the former owing to their strength, the latter to their agility. The interest and importance of Professor Lischetti's observations need no emphasis. So far, it would appear, only culex larvæ have been the subjects of his experiments. It is to be hoped that they will be repeated as early as possible with larvæ of anopheles.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 7, 1920.

The Insurance Practice Settlement.

THE Ministry of Health has announced the names of the three gentlemen who have consented to act as arbitrators on the question of remuneration at issue between the Government and the medical profession, as laid before them by the assessors. The arbitrators are Mr. F. GORE-BROWNE, K.C., a Master of the Bench of the Inner Temple; Sir RICHARD VASSAR-SMITH, President of the Council of the Institute of Bankers and chairman of Lloyd's Bank; and Mr. J. C. STAMP, D.Sc., secretary to Explosives Trades, Ltd., and a member of the Royal Commission on Income Tax. Mr. GORE-BROWNE is to act as chairman. The exact terms of reference are:—

To advise the Government what should be the amount of the capitation fee (per insured person per annum) on the basis of which the Central Practitioners' Fund under Article 19 (i.) of the Medical Benefit Regulations, 1920, should be calculated, so as to afford fair remuneration for the time and services required to be given by general practitioners, under the conditions set out in those Regulations, in connexion with the medical attendance and treatment of insured persons.

This capitation fee is not to include any payment in respect of the supply of drugs and appliances (such payments being met out of the Drug Fund under Article 22), nor any payments to meet those special conditions of practice in rural and semi-rural areas which are covered by the payments to be made out of the Central Mileage Fund under Article 19 (ii.).

It was understood that the award was to be completed within four weeks, although we may well hope that agreement will be reached even sooner on an issue in which the materials for decision lie to hand.

The arbitration will, we may presume, settle the basis of remuneration for the time being; for although there are a number of practitioners in various parts of the country who are honestly satisfied that it is not for them to offer willing service on less than such-and-such a capitation fee, there is a very general desire to assist the Ministry of Health in administering medical benefit under the Insurance Acts at a difficult transitional period. The vital matter, in the minds of many, the good-will of panel practice, is not alluded to in the terms of reference. The action of the Cheshire Local Medical and Panel Committee illustrates how keenly this question is felt. At a meeting of this body, held at Crewe a fortnight ago, it was announced that agreement had been reached with the Cheshire Insurance Committee on the method of transferring a medical practice on the death of a panel doctor. This agreement requires the approval of the Minister of Health, and the Cheshire Panel Committee has resolved, failing the ratification of the agreement, to advise its constituents to decline service under the Insurance Acts. Cheshire doctors agree with their colleagues elsewhere that patients should have the opportunity for free choice, but they consider that, where choice is not exercised, patients should be allotted automatically to the successor of a deceased doctor, in so far as they do not lie outside his ordinary radius of practice. A similar clause was recommended by the Insurance Acts Committee of the British Medical Association to all Panel Committees, but the disapproval of the Ministry was signified in a circular letter issued on Jan. 19th. The objection of the Ministry was expressed in the following passage:—

The Allocation Sub-committee, within their discretion may, of course, lay down general lines of procedure which they will in practice follow so far as they can consistently do so, having regard to the merits of the particular cases before them, and it is not desirable that their hands should be tied in advance in regard to the assignment of insured persons.

The objections, from the public point of view, of creating vested interests have prevailed.

Rules and regulations are necessary in any public service. They are the only means whereby a Government Department is able to maintain a standard of duty guaranteed by the Act of Parliament under which any service is instituted. But while regulations may cajole the wayward and keep up a show of energy in the slacker, they are often a source of chagrin and sometimes a positive drawback to the honest work of the conscientious man. Dr. ADDISON frankly recognised this, when faced by the deputation from the British Federation of Medical and Allied Sciences, which asked for a public inquiry into the whole working of medical benefit. The Panel Committees had, he reminded the deputation, given an undertaking through their representatives that a satisfactory service would be given in return for increased remuneration. Should any regulation prevent a practitioner from giving of his best, the Minister agreed to remove the restriction forthwith. That assurance may do for the present. Insurance practitioners demand no favoured position. Their standard of conduct is that of the rest of the medical profession, and the svere judgments which they pass upon the conduct of their colleagues are often a source of amazement to the Medical Service Subcommittees before which complaints against panel practitioners are lodged. What Insurance practitioners chiefly desire is to have elbow-room, in discharge of their duties towards their panel patients, wherein to practise their art without irksome supervision. Dr. ADDISON, we believe, admits this.

Symptomatic or Partial Diagnosis.

IN a review published in THE LANCET of Jan. 17th (p. 158) there occurs the terse dictum: "No man should be pensioned for D.A.H." This is a conclusion arrived at by Captain R. M. WILSON and Captain W. M. T. WILSON after an analysis of the various conditions lumped together under this vague and unsatisfactory grouping. The term "disordered action of the heart" does indeed occur in the 1918 edition of the official Nomenclature of Diseases to cover conditions as various as tachycardia, Adams-Stokes's disease, and Graves's disease, but a footnote is added to the effect that when the cause is known, return should be made under the head of such cause, the local condition being also specified. "D.A.H.," that is, should not be employed except as a temporary classification under conditions of active service to assist in evacuation and distribution. We have in essence a plea for accurate diagnosis. By a coincidence the same number of THE LANCET contains a letter from Sir THOMAS HORDER referring to a well-known definition of medicine, attributed in its original form to more than one leader of our science—it runs, "Medicine has three parts: the first is diagnosis; the second is diagnosis; and the third is diagnosis." In this connexion we may repeat Dr. W. H. R. RIVERS'S definition of diagnosis which seems to us complete, and which led to Sir THOMAS HORDER'S letter. Dr. RIVERS says: "The word connotes the whole process by means of which we come to understand the nature of each individual case of disease, and analyse into its elements the complex web of agencies by which the morbid state has been produced." This covers the ground, and puts nomenclature into its right place as a convention necessary for the intercommunication of ideas.

In military medicine convenience, and perhaps necessity, have sanctioned the use of abbreviations or initials such as D.A.H., V.D.H., N.Y.D., and P.U.O. Written at length their insufficiency or even absurdity becomes apparent, but may we not ask whether many practitioners, who scoff at the obvious weakness of these abbreviations, do not often rest satisfied with equally incomplete tentative or deceptive terms, and fail to achieve a real diagnosis, when with further analysis or investigation such a diagnosis may be possible? Disease should be regarded as a dynamic rather than a static condition, and diagnosis should involve a recognition of the process rather than a mere statement of the resultant condition or its symptomatic expression. Too often diagnosis is incomplete because the observer rests content with the recognition of a symptom or a symptom-complex which may be common to many morbid processes. Jaundice, dyspepsia, D.A.H., and constipation are gross examples, which are only too apparent and can be indefinitely multiplied, but there are more complex and more subtle instances which are less obvious and therefore more dangerous. The labelling of all cases of arterial thickening as arteriosclerosis without qualification tends to render treatment of these conditions haphazard. The application of the useful term fibrositis to all and sundry pains in connective tissues may lead to ineffective treatment, or, worse, to disaster from the non-recognition of grave morbid conditions underlying the particular symptom. The terms functional disease, hysteria, and neurasthenia are frequently responsible for the failure to recognise serious organic disease hiding behind the functional exaggerations or mimicry of a fatigued, poisoned, or over-active nervous system. It is the morbid process in disease with which diagnosis is concerned, and scientific diagnosis is really an "insight" into disease.

It is sometimes useful for a medical man in charge of a difficult or a prolonged case to review his diagnosis, and, as it were, to look at the patient as a new case. Mistakes not infrequently occur from overlooking the obvious, from failing to notice some change in the patient or his physical signs, owing to the too ready acceptance of a tentative or partial diagnosis made in the early stages of an illness. A later observer, examining the case, takes a larger view, and with a more accurate perspective arrives at a correct diagnosis. The original observer, when it becomes clear that he has not arrived at the fundamentals, should hasten to put himself into this critical attitude. In the review to which we have referred, this question of accurate diagnosis is primarily considered from the point of view of the assessment of pensions—that is to say, from the standpoint of prognosis. But accurate diagnosis is essential for the effective treatment necessary to establish the forecast. Treatment has of necessity to be symptomatic or palliative where disease is advanced and incurable, or in cases where no specific or fundamental treatment is yet available, but the medical man who is satisfied to treat symptoms without first probing to the full after accurate diagnosis is not even a craftsman—much less the man of science he should strive to be.

Epidemic Dropsy.

"THE triple scourge of war, pestilence, and famine disgraced the reign of JUSTINIAN," says GIBBON, and frequent repetition in history shows that their association is not fortuitous. As Dr. DOUGLAS BIGLAND said in his interesting paper on œdema in food-deficiency diseases published in our columns last week, "Whenever there are wars, famines, and long voyages in ill-equipped ships; wherever persons are housed together under relatively bad conditions, as in asylums and prisons; wherever the population lives on a minimal or one-sided dietary, liable at times to be reduced to a fraction above nothing, there we have the conditions for the development of food-deficiency diseases and there we have epidemic dropsy." His paper and that of Dr. J. I. ENRIGHT, which we

publish to-day, raise the question of the mechanism of the production of œdema by food deficiency and its relation to other recognised forms of dropsy. The appearance of epidemic dropsy in war is no new thing. It was observed in the American Civil War, but before long this was traced to nephritis. Similarly, when epidemic nephritis first appeared in Flanders in 1915, it was first recognised as epidemic dropsy. But these epidemics occurred in troops who were still well nourished and well fed, and were, therefore, quite different from the isolated outbreaks in India and Mauritius, and from those recently observed among Turkish prisoners of war and among the native troops in East Africa. After studying the Calcutta outbreak of 1908–09, GREIG concluded that it was a nutritional disease, brought about by one-sided dietary. All the deficiency diseases are apt to present dropsy. Pellagra has been shown by BOYD and others to be due to the insufficiency of "biological" protein, which we take to mean the protein actually assimilated. Beri-beri and scurvy are both recognised to be deficiency diseases. Any disease which leads to blood destruction, such as malaria or ankylostomiasis, appears to help the production of epidemic dropsy, but in Dr. BIGLAND'S opinion blood destruction is not adequate as a sole cause. Dysentery is often associated with epidemic dropsy partly because both diseases are common under conditions of food shortage, but also because dysentery means that such food as can be given is inadequately assimilated. The Lunacy Commissioners regarded the alarming increase of sickness occurring in the asylums of England and Wales during the years 1917–18 as due in the main to food deficiency, and the letter of Dr. W. F. MENZIES in our correspondence columns sets out, from his own observation, the part which hunger œdema played in this increase.

A good case can, therefore, be made out for deficiency of vitamines as a cause of dropsy. We may next inquire as to the mechanism by which it is brought about. MCCARRISON has put forward the theory that the œdema of inanition and beri-beri is initiated by the increased intracapillary pressure which results from increased production of adrenalin, acting in association with malnutrition of the tissues. It is not clear how adrenalin would effect this, since the constriction of the arterioles produced would tend to shut off pressure from the capillaries. Dilatation of capillaries has been produced by minimal doses of adrenalin, it is true, but not by an increase over the normal amount in the circulation. C. BOLTON'S experimental production of œdema in animals is pertinent to the discussion. He tied off a portion of the pericardial sac so that the residue of the pericardium was too small for the heart, thus preventing its free expansion. This interference with its diastole caused distension of the great veins and then dropsy. Observations of the arterial and venous blood pressures did not suggest that a rise of capillary pressure was responsible for this. BOLTON concluded that it was due to the increased permeability of the capillaries, brought about by deficient oxygenation of the blood and impaired nutrition of the capillary wall. We are still too apt to look upon the capillary endothelium as a mere passive membrane, through which filtration occurs. Yet it has been shown to have a great resisting and selective power as long as it is well nourished. An endothelium, such as Descemet's membrane, can withstand a high filtration pressure as long as it is alive, but rapidly swells up under such pressure if it is killed. MOTT showed that the cerebral hæmorrhages which sometimes occur a few days after carbon monoxide poisoning are due to fatty degeneration in the capillary endothelium of the cerebral vessels. The carbon monoxide takes up so much of the hæmoglobin that there is not enough left to carry oxygen to the tissue cells. That the capillary endothelium should suffer so markedly shows how dependent it is on oxygen for its maintenance. DALE and RICHARDS'S histamine experiments point in the same direction. Again, temporary ligature of renal vessels is followed by albuminuria. The capillary endothelium is, in fact, intensely sensitive to changes in oxygen-supply, nutritive defects, and to toxins. The influence of toxins in renal dropsy is clearly shown by the fact that it occurs where the activity of the renal tubules is diminished, as in parenchymatous nephritis, and not in interstitial nephritis, even though the blood pressure be high.

In deficiency disease, where many tissues show damage, it is not surprising that the malnutrition should affect the delicate structure of the capillary endothelium, and that the resulting damage should express itself as undue permeability. This does not exclude an influence of the vaso-motor nerves. The famine dropsies of India presented paræsthesia and deep-seated pains as early symptoms, showing that the nerves were involved; while neuritis is the most prominent symptom in beri-beri. As to pellagra, ROAF in this country and Dr. MARY MORSE in America have demonstrated structural changes in the sympathetic nervous system, and the associated eruption is probably due to the vaso-dilatation resulting from this, since the vaso-constrictors, being sympathetic in origin, would be damaged. Adrenalin defect would act in the same direction as impaired sympathetic tone, and might therefore be a factor, though adrenalin excess could hardly do so, in our opinion. But damage to the capillary endothelium seems the simplest and most generally applicable explanation of dropsy, whether in anæmia, heart disease, renal disease, or in failure of nutrition due to lack of vitamines.

His Majesty's Stationery Office regret that, the orders for Sir George Newman's Report on Preventive Medicine being so numerous, they have been unable to despatch copies as quickly as they would have wished. All orders are being dealt with as promptly as possible in rotation, and as supplies are received from the printers. It is not anticipated that there will be more than a few days' delay.

Annotations.

"Ne quid nimis."

DENTAL SEPSIS.

THE importance of dental sepsis in lowering the standard of national health is becoming generally realised. The subject was discussed at the Section of Odontology of the Royal Society of Medicine on Jan. 26th, when Mr. F. St. J. Steadman read a paper on Dental Sepsis in Children: Its Consequences and Treatment, which we give in full in another part of our present issue. Dentists, as a body, know the danger of an unclean mouth, but they feel, and say, that the family practitioner often does not take the matter with sufficient seriousness. The practitioner is probably aware of the dental condition of his patients, but does not make opportunity to study the problems. As a result of recruiting, however, figures are available which must carry conviction to all. The Departmental Committee on the Dentists Act obtained information on the state of the teeth of recruits joining the army during the war. In the Scottish Command it was stated that "recruits from industrial areas and of the artisan and labouring class show little or no evidence of having had any attention paid to their teeth previous to enlistment, and almost every man requires dental treatment." It was estimated that 44 per cent. of the men were dentally unfit in a military sense—i.e., they lacked the minimum of dental efficiency which would ensure effective mastication of food. In the Aldershot Command, out of 35,645 men examined 72·2 per cent. required dental treatment, of whom 10·9 per cent. wanted extensive treatment and dentures. There were needed 37,483 extractions, 42,974 fillings, and 4985 dentures. In the London Command about 70 per cent. required dental treatment; of these, 40 per cent. required extensive treatment extending over several visits, whilst 38 per cent. required treatment for a month or more, with many extractions and provision of dentures. In the Eastern Command 83 per cent. of recruits of 18 and 19 years of age required treatment, and 93 per cent. of those between the ages of 19 and 44. In the Eastern Command 97 per cent. exhibited dental defects, 75 per cent. of whom were in urgent need of treatment. So much for the condition of the male population. With regard to the women, it is said that:—

> "The evidence submitted to the Committee indicated that the condition of the teeth of the women of the nation is worse than that of the men. Having regard to the direct connexion between defective dentition and ill-health, a greater amount of sickness would naturally be expected in respect of women than of men. The results revealed by the working of the National Insurance Act are in accordance with this expectation."

There is no need to enumerate the various affections which result from dental sepsis, either directly or indirectly, but as an instance of the prevalence of disease attributable to defective teeth we may recall the report which was submitted to the Army Council by the Southern Command. Of 304 medical cases examined 160 were suffering from troubles directly attributed to defective teeth, and from 60 to 70 from troubles indirectly so attributed. As is very forcibly pointed out in Mr. Steadman's paper and in the discussion which followed (see p. 324), there are not nearly sufficient dentists to carry out the work which should be done, but the provision made for the adult among the poorer classes is even less than that made for the school child. It is very unfortunate that what is not only desirable but absolutely necessary is rendered impracticable by the dearth of registered dentists.

MINERS' NYSTAGMUS.

THE economic aspect of miners' nystagmus was the subject of a paper recently read before the North Staffordshire Institute of Mining Engineers by Dr. T. Lister Llewellyn. Although in times past the disease was attributed to the constrained position of the body and eyes necessitated by the miners' work, it is now generally recognised that the most important element in its causation is defective lighting of the mines. The disease was, in fact, unknown previously to 1850, when the safety lamp was introduced, and its incidence appears to vary more or less inversely as the brightness of the illuminant employed in any particular mine. Physiologically, the mechanism of vision is different in a dim light from what it is in a bright one. The importance of the fovea centralis no longer exists, and vision is actually better some 15° or 20° away from it, where the retinal rods, instead of being absent as they are at the fovea, are at a maximum. Another factor in the causation of nystagmus is the crystalline surface of the coal face, which reflects light from innumerable facets, the one that happens to reflect most light into one eye being different from the one that reflects most light into the other. Yet another factor is probably some instability in the cerebral centres which regulate the reflex action of the eye muscles. An insufficiently understood fact is that the physical sign may persist for a long time without causing any symptoms, but any slight accident, or even the mere suggestion due to a medical examination in which the unconscious subject of nystagmus is told of his defect, may give rise to marked subjective symptoms.

The disease is one of deliberate onset, the average number of years of underground life before failure being 25 according to Dr. Llewellyn. It follows that the full benefit of any remedial measures will only gradually become apparent. The most important remedial measure called for is not in any manner of doubt—it is to devise a better illuminant for the safe lighting of mines. Dr. J. S. Haldane, in supporting Dr. Llewellyn's plea for better lighting, states that in American mines an electric light is carried on the cap or on the body in front, and connected by a cable to the accumulator carried on a belt behind, and that this method appears to solve the problem satisfactorily. If this is so, the £100,000 called for by Dr. Llewellyn to endow a research for a better illuminant for safe lighting would seem superfluous. In any case, since the loss to the State owing to this disease alone is estimated at no less than a million a year, it is plain that some action is urgently required. The discussion on Dr. Llewellyn's paper elicited an interesting fact. Mr. Caleb Johnson stated that six years ago electric lamps were installed in one of two pits working the same seams—at the same depth and by the same method. "As the result of six years' working these were the results obtained. In the pit where electric lamps were used 50 per cent. of the workings were lighted by electric lamps, about 70 to 75 per cent. of the men at the face having electric lamps. In that pit the cost of nystagmus was something less than

one-thousandth part of a penny per ton of output. In the other pit, where oil lamps were still used, the cost of nystagmus was about three-fifths of a penny per ton of output." Again, as to accidents: "In the colliery where they had electric lamps he found that for every 53 shifts that had been worked one had been lost through accident. In the oil-lamp pit, for every 22 shifts worked one had been lost through accident. Further, the output per shift per person had been greater in the electrically-lit pit than in the oil-lamp pit." Another speaker raised the question of how far nystagmus may be due to other causes besides defective lighting in the pits. Congenital nystagmus and nystagmus from blindness in infancy, as well as from other causes, are well known, but this does not affect the fact that so far as the disease is due to the miners' vocation defective illumination is the prime factor in its causation.

VOLUMETRIC TESTS ON SCIENTIFIC GLASSWARE.

THE new facilities in regard to the standardisation of laboratory glassware recently announced by the authorities of the National Physical Laboratory, Teddington, deserve the attention of all those engaged in scientific work. We need hardly remind our readers that the manufacture of volumetric scientific glassware is an industry which was practically non-existent in this country before the war. It has since developed satisfactorily, and the high position it has gained should never be lost. The essential point is accuracy of measurement or calibration, and in this matter the authorities at Teddington are giving British manufacturers every possible assistance in undertaking for quite modest charges the work of standardising the apparatus they make. Scientific work is clearly advanced when the instruments employed in it can be obtained with a hall mark verifying measurements. The following paragraph, taken from the *Economic Review* (Jan. 21st), is interesting in this connexion:—

Faulty German Thermometers.

The *Chemiken Zeitung* (Dec. 30th) calls attention to the complaints current in Holland and Switzerland concerning German clinical thermometers, some of which are said to be useless. Although provided with a "test certificate," these thermometers have proved quite unreliable, errors of as much as 0·5 to 1° C. being registered. The *C. Z.* urges that measures should be taken to maintain the reputation of German manufactures.

These are just the measures which our National Physical Laboratory at Teddington is taking to maintain the reputation of British manufactures.

THE INDEPENDENT LIFE OF TISSUES.

IT IS now a commonplace of thought among the better-educated part of the community that the bodies of animals consist of masses of cells, differentiated structurally and functionally to serve the purposes of the general mass, whose individuality is the summation of the characteristics and activities of all the individual cells. This conception of the complicated structure of animals finds in recent years its most striking confirmation in the fascinating work of Ross Harrison, Burrows, Carrel, and numerous other American investigators on the cultivation of tissues in vitro. The conditions which determine whether a cell can live in artificial culture are similar to those which the body naturally provides. An adequate supply of appropriate foodstuffs, oxygen for the processes of combustion, removal of carbon dioxide and other waste products, and, what is now more clearly realised as an indispensable condition of cell growth and activity, a scaffolding or supporting framework. The provision of all these conditions for a cell outside the body is exceedingly difficult and represents a technical accomplishment upon which the American scientists have earned universal congratulations. The extent of the success which has already been achieved is shown by a contribution to the *Journal of Experimental Medicine* for December, 1919, in which Dr. A. H. Ebeling gives an account of his work in maintaining in culture a piece of connective tissue which was isolated by Dr. Alexis Carrel from a fragment of heart taken from a seven-day old chick embryo in January, 1912. This tissue has now been kept in cultivation outside the body for a period of over eight years, undergoing during the last seven years 1390 passages. The cultivation of animal tissues can in some respects, therefore, be compared to the work of the bacteriologist who keeps alive in artificial media species of bacteria which are never found outside the body. The difficulties are greater, but the principle is the same. It is still rather an astonishing thing to regard the cells of the heart as individuals which may be transplanted from day to day in artificial media and maintained in what may be called a condition of robust health. From these results it would appear that we are justified in looking upon the cells of animals as potentially immortal. Their death in nature is dependent upon accidents to the complicated mechanism of which they form a part. If the manner in which these accidents occur were completely known, and could be avoided, the individual cells would certainly go on living and performing their function for periods far greater than are customarily assigned as the limits of life to the species. The principal aim of medical science is to discover the mode in which the apparatus of the vast colonies of cells is disintegrated; and, given any measure of success in this, the work of Carrel and his colleagues affords grounds for the hope of immensely prolonging the life of man.

THE MEDICAL REPORT AS POPULAR EDUCATOR.

THE vast difference in educative value between the reports of various medical officers of health, to which we devoted a leading article in THE LANCET of Jan. 3rd, was seen to depend largely on the trouble taken to summarise the figures in readable form for the benefit of the lay public, and to make appropriate deductions therefrom. It was emphasised then that neglect to do this was more often a question of pressure of work than of unwillingness to trouble to make an annual survey of the local position in public health. Moreover, some medical officers maintain that the correct interpretation of vital statistics is an intricate and difficult task best left to the biometrician, and that their own function is confined to the accurate presentation of facts. A Memorandum (No. 9 Med.) just issued by the Ministry of Health deals with the contents and arrangement of the annual reports of medical officers of health for 1919, and should be of the utmost help towards their compilation. Directions are given as to the scope and type of information desired under the various main headings, which include natural and social conditions of the district, sanitary

circumstance of the district, food, prevalence of and control over infectious diseases, maternity and child welfare, sanitary administration, other services, and housing. The portion of the report on housing is, on this occasion, to be bound separately in order to facilitate its perusal both locally and in the Housing Department of the Ministry of Health, but this fact is to be indicated in the relevant portion of the main report and detailed references inserted. If all medical officers of health adopt the official plan, and treat the subjects in the order indicated in the Memorandum, comparison of reports from different areas will be easy and experience can be pooled.

In a covering letter the secretary to the Ministry of Health dwells on the importance of these comparisons and the impotence of isolated effort. He emphasises the necessity of local distribution and publicity to engender popular interest and enlighten public opinion. An increase of public knowledge and interest in these matters, it is suggested, may also become an effective means of educating the citizens in the more important conditions of public health, of warning them against particular dangers, and of securing that highly important coöperation and confidence between them and the health authority and its staff which is essential to successful health administration.

THE NEW REGULATIONS FOR MEDICAL BENEFIT.

WE understand that a letter has been sent to all Members of Parliament by the Federation of Medical and Allied Societies, begging them to support a demand for an inquiry into the regulations under which medical benefit is obtained through panel practice, before any expansion or alterations in the provisions of the Insurance Act are proposed. This action of the Federation arises out of the reply given by Dr. Addison to the deputation which he received a few days ago, when he promised that he would unhesitatingly recommend such an inquiry, after receiving a report from the Medical Consultative Council, should he thus become convinced of the advantage to be derived. The Federation will be in a stronger position to criticise any existent or intended methods when the Medical Consultative Council have spoken; but they desire to keep before Parliament the urgency of the questions involved.

THE SMALL-POX MENACE.

WE have had occasion during the past two years to direct the attention of our readers [1] to the danger arising from the importation of small-pox infection from abroad, particularly in connexion with the return of our sailors and soldiers from parts of the world where the disease has been prevalent, or even severely epidemic. During 1917 only 7 cases of small-pox were notified in England and Wales; in 1918 the number increased to 51 in the urban and rural districts, along with 12 others in port sanitary districts, making a total of 63 cases for the year. But in the first half of 1919, according to an interesting contribution by Dr. R. J. Reece, published in the forty-eighth and last annual report of the Medical Department of the Local Government Board, there were no fewer than 179 notifications of small-pox in the urban and rural districts of England and Wales, as well as 29 others at our ports, making in all 208 small-pox cases in England and Wales during a period of six months. It is worth noting that a number of the local outbreaks in the first half of 1919 were traced to infection brought by soldiers returning from infected countries, such as Italy, Greece, and Egypt, while other groups of cases owed their origin to infection brought home by civilians or sailors from foreign ports in Spain or Portugal. The occurrence of severe epidemics of small-pox after great wars is a fact well recognised by epidemiologists. If it had not been for the care exercised at our ports in recent years the infection introduced from abroad would have led to a far greater prevalence, if not an actual epidemic, of the disease in our country. There is also no doubt, as Dr. Reece points out, that the prompt notification of cases, the speedy isolation of the patients, and the diligent inquiry made as to contacts all contributed to the successful prevention of the spread of the infection. Such measures, alone, however, cannot be implicitly trusted when small-pox invades an unvaccinated community. The long-continued absence of epidemic small-pox from our land has given rise, in many persons, to a false sense of security, and in consequence vaccination and revaccination have been neglected. In this connexion Dr. Reece mentions in his report that small-pox was contracted by some persons who had been in contact with patients, and who had refused the timely offers of vaccination or revaccination; there were instances also where even doctors, nurses, or members of the staff of the local sanitary authorities fell ill of small-pox, having trusted too much to their primary infantile vaccination, instead of seeking revaccination at adult age. A considerable proportion of our adult male population, who have been on military service, have been revaccinated, and are therefore protected (though, unfortunately, not all who went to the front were revaccinated); but, on the other hand, the vaccination of infants has been growing less and less of late years. Dr. Reece estimates that at present about half of the children of England and Wales under 10 years of age are unvaccinated. In pre-vaccination times the mortality from small-pox was greatest in those under 10 years, the majority of the deaths being children under 5 years of age. Should small-pox again become epidemic in our country we may witness a return to the old state of things and see many children die of small-pox whose lives could have been saved if their parents had accepted the opportunities afforded to them by the State for infantile vaccination.

[1] Vide THE LANCET, August 17th, 1918; and August 23rd, 1919.

THE FRANKNESS OF THE PHYSICIAN.

SOME few weeks ago Mr. C. E. Montague gave an address to the members of the English Association at Manchester University upon clearness in imaginative writing, and came to the conclusion that too much clearness was to be deprecated. "Every urbane writer, even when greatly explicit, would stop short of expounding the last detail of his meaning. ..... The best of imaginative writing has its leaves in the light and its roots in the darkness. ..... It is more blessed for a reader to guess right than to be told." Most of us will agree with Mr. Montague so far as literature goes, but the leaving of the reader to guess the writer's meaning produces in many instances extraordinary results. For instance, there is perhaps no one line of poetry in any

language which has been more quoted, more discussed, and more misunderstood than—

"Sunt lacrymae rerum et mentem mortalia tangunt."

and all kinds of meanings and undercurrents of feeling have been read into this line, varying according to the taste and fancies of the readers. But, as shown by a writer in the *Classical Review* (February–March, 1919), all the presumed difficulty has arisen from the line being divorced from its context, and if taken in connexion with the accompanying lines its meaning stands out perfectly clearly. Here the guesses of readers have led them into a morass, but if Virgil had written a baldly clear statement much of the charm of the passage would have been lost. If we pass to the question of too much clearness in other departments of life we are met by the problem, "How far is it desirable to tell the whole truth?"—and this is a problem the solution of which very often affects the medical profession. Dr. Batty Shaw, in a paper which appeared in our issue of Jan. 24th, laid stress upon the fact that "probably all children ..... living under the conditions of civilisation are infected by *B. tuberculosis*." Further on he said, "I think that the subject of tuberculosis has become popularised too much, or should I say has been only partially popularised. It is more palatable to a lay audience to listen to the accounts of the marvellous cures which have come as a result of this, that, or the other treatment. It is not at all palatable, and lay men and women would not be tempted to join associations for the study of this disease if they were told the whole truth." Here, then, is one instance where the problem above mentioned comes forward for solution. If the average layman knew the whole truth, would it make him throw up the sponge in the contest against tuberculosis or would it stimulate him to further exertions? In this case the knowledge or reverse of the truth affects the community as a whole, but the same problem arises as affecting individuals in those many cases which arise in medical practice where it becomes the medical man's duty to decide whether or no he should tell his patient, or those responsible for the patient, the whole truth as to the disease from which that patient may be suffering. Hope, as everyone knows, is a large factor in recovery, and to dash such hope to the ground may be the last impulse which sends the sufferer into the abyss. But, on the other hand, there are cases in which, so far as human knowledge can tell, the patient is absolutely doomed; what should be the medical man's action then? In our opinion there can be no hard-and-fast rules for action laid down, for so much depends upon the individual circumstances of each case. May there not be too much clearness? Sometimes, surely, to paraphrase Mr. Montague's words, "It is more blessed for a patient to guess right than to be told."

INFLUENZA: PREPARATIONS IN SCOTLAND.

CORRESPONDING to the advice given by the Ministry of Health to medical officers and local authorities in England and Wales, a circular on the risk of a general outbreak of influenza has been issued by the Scottish Board of Health to authorities and officers in Scotland. The circular emphasises the importance of having in readiness a preconcerted scheme to meet the outbreak if it should come. The scheme recommended by the Board, subject to modification to meet local conditions, is as follows.

1. The local authority should appoint a small emergency committee to whom, with the medical officer of health, would be delegated full powers to act and incur necessary expenditure.

2. Medical practitioners and voluntary health workers should be consulted and their coöperation invited. The coöperation of the local employment exchanges of the Ministry of Labour should be invited also, in order that the opportunities for service may be brought under the notice of suitable persons.

3. A scheme should be drawn up for the provision of medical nursing and other assistance to the sick, and for the employment of women as home helps in cooking, care of children, and domestic work.

4. Arrangements should be made by which health visitors and other members of the staff of the local authority and of its institutions may be used to the best advantage and temporary creches and special kitchens promoted. The prophylactic inoculation of the staff of the health department and of nurses, home helps, and other workers under the scheme may be taken into consideration.

5. Wards of the infectious diseases hospitals of the local authority and of general hospitals should be set aside for the treatment of cases of influenza judged to require hospital treatment and the provision of emergency hospital accommodation should be arranged for in case of need.

6. Steps should be taken by the local authority to prevent overcrowding and to secure adequate ventilation in public buildings and public conveyances.

7. Notices and leaflets should be prepared for issue to the people having reference to the importance of free ventilation; the avoidance of needless exposure to infection; the necessity to keep away from places of public resort; and similar points; and furnishing for public information suitable details of the local authority's scheme.

The Board is prepared to supply gratis to medical officers of health, for distribution to practitioners and hospitals in their areas, supplies of recently produced vaccines against secondary infections. These are not intended to replace any other vaccine, prepared from a local strain, which may be in use in different localities.

RUPTURE OF AN AORTIC ANEURYSM INTO THE LEFT INNOMINATE VEIN.

RUPTURE of an aortic aneurysm into the superior vena cava is so rare as to be among the curiosities of medical literature. Dr. J. B. Herrick has recently reported[1] a case of rupture into the left innominate vein within less than a third of an inch from its debouch into the cava, which can therefore be classed under the same head.

The patient, a medical practitioner, aged 33 years, had suffered for 6 months from pains in the chest which at times extended to the right arm. He denied syphilis, but the Wassermann reaction was strongly positive. One evening while ascending stairs he had a feeling of something giving way in his chest, and his face and neck felt flushed and full. The sense of choking and pressure was so urgent that he tore open his collar and the neckband of his shirt. While trying to turn on the electric light he lost consciousness. How long he lay on the floor in a swoon was not known—he thought about 20 minutes. On recovering he turned on the light and looked in the mirror, and saw that his neck and face were swollen and "almost black." Breathing was difficult and he summoned aid by telephone. During the next five weeks he suffered from dyspnœa, at times amounting to orthopnœa. Attacks of coughing, with choking sensations and cyanosis, seemed to threaten death. He became weak and irritable, and at times was somewhat delirious. At the end of this period he came under Dr. Herrick's observation. The picture was such as he had never seen before. The face and neck, as well as

[1] American Journal of the Medical Sciences, December, 1919.

the chest wall, were swollen, as in the anasarca of chronic parenchymatous nephritis. The injected eyeballs bulged through the narrow slits between the swollen lids. But instead of the pasty nephritic pallor, the patient's colour was almost black, a tint observed only in extreme cyanosis. The visible veins were distended and tortuous. The contrast between the bloated, dark upper half of the body and the pale, emaciated lower portion was remarkable. The patient had the spindle legs of the last stage of wasting disease without œdema. The abdominal wall was slightly œdematous above the umbilicus. The line of separation between the pale, flaccid abdominal wall and the swollen, purplish chest wall, which was hard and brawny, pitting only on firm pressure, was almost as clear cut as the line of demarcation in a case of gangrene. The cardiac outline was difficult to determine because of the thick, œdematous chest wall. At the base of the heart and over the manubrium was an increased area of dullness. A systolic murmur, which lasted into the diastole, was heard over the precordium and in the interscapular region. At the aortic cartilage it was most intense, continuous, soft, blowing, and somewhat humming. Numerous râles, moist and dry, were heard over the lungs, particularly behind. At the bases there was some dullness, with obscuring of breath sounds, as from pleural effusion. Breathing grew more and more difficult, dysphagia developed, and sleep was possible only by the aid of drugs. A radiogram showed a shadow as from an aneurysm of the aortic arch. He gradually lost strength, and died eight days after he came under observation. The necropsy showed old and active aortitis, typically syphilitic. The aneurysm originated 4 cm. above the aortic valves. The sac projected so as to press on the superior cava, especially near the heart. The opening into the vena cava was 1·5 cm. in diameter. The innominate and azygos veins were much distended.

The case narrated conforms to the description given by Pepper and Griffith[2] in their classical paper on Rupture of Aortic Aneurysm into the Superior Vena Cava. They found records of 29 cases. With the present case the number now reaches 43. While the typical case permits of diagnosis, variations in the size of the aneurysm, in the point of pressure, and in the degree of obstruction may cause difficulty. Treatment can be only palliative. Bleeding has been of only temporary benefit. Death may occur soon after the accident, or be postponed many weeks or even months.

SILENT RENAL CALCULI.

Dr. Edmund L. Young, jun.,[1] of Boston, states that in 3960 autopsies performed at the Massachusetts General Hospital since 1896 stones were found in the kidney or ureter or both in 45 cases. In 7 cases operations had been performed for stone, and one small stone out of many, or a fragment from a large stone, had been lost in a pyonephrotic cavity. In a bilateral case one side had been operated on and the other was to have been done later. One case with calculous pyonephrosis died without operation. In the remaining 37 cases the patients were in hospital for some other condition than stone in the kidney. Stones were known to be present in three of these, but had nothing to do with the condition from which the patient suffered and ultimately died. There was only one case with a completely negative history and urinary findings and a normal kidney on naked-eye and microscopic examination, but there were four cases without symptoms and with a negative urine, six cases without any damage to be demonstrated at the autopsy, and 15 cases in which the damage was too slight to compromise the integrity of the kidney. On comparing the clinical and pathological aspects it was found that one patient who was known to have had a stone for six years had a negative urine and a normal kidney. Another patient who had passed stones for at least seven years had a negative urine and a kidney which was normal apart from a very slight dilatation. Of the four cases without symptoms and with a negative urine only one showed an entirely normal kidney; it contained many small stones in the calices and the pelvis. The other three were, however, essentially normal, some interstitial changes and atrophy of renal elements being the only lesions noted.

[2] Trans. Assoc. of American Physicians, 1890.
[1] Boston Medical and Surgical Journal, Nov. 13th, 1919.

MULTILOCULAR HYDATID DISEASE.

Multilocular (also called alveolar) hydatid disease was first recognised and described in Germany by Virchow in 1855. Previous to his description, the cases when met with appear to have been regarded as alveolar colloid cancer. The liver was for a long time the only organ known to be affected, and the few recorded cases have come principally from Russia, South Germany, and Switzerland. Writers have been much exercised as to the way the formation arises. It is known that exogenous budding, with the production of external daughter-cysts, is a phenomenon exhibited by some hydatid cysts, just as internal daughter-cysts occur from endogenous growth. It is stated by Neumann that the two kinds of budding—exogenous and endogenous—are not generally found in the same echinococcus, nor in the same host. If this is true, it would seem as if there existed either an influence derived from the tissues of the host or a special propensity implanted in some races of the parasite.

After the typical picture of multilocular hydatid had been established from examination of liver specimens a new series of echinococcus tumours began to be observed. These appeared to have their primary seat in bone. Virchow stated in 1883 that multilocular hydatid of the liver and hydatid of bone were the same disease. Moreover, he regarded the echinococcus of the multilocular form and that of the cystic type as the same parasite under different conditions of life, and especially of pressure in dense tissues. This theory would hardly suffice to explain why the cysts continued to be small in collections situated in the soft tissues of the interesting case described by Dr. C. E. Corlette, of Sydney, in our present issue; for instance, those in the left thigh, in the right retro-peritoneal region, or above the spleen. Compression could not there be the cause of their small size, and it is probably partly a question of nutrition and partly of the mechanical conditions, since the cysts were naked and quite free, like marbles in a bag, and the large ones probably got ruptured.

Dr. J. B. Cleland, principal microbiologist of New South Wales, has compiled a bibliography and short abstract of those cases of hydatid disease of bone recorded in Australian periodical literature. About 18 separate cases have been recorded, of which 5 are in the femur, 3 in the sacrum or coccyx, 2 in the tibia and the ilium, and 1 in each of the following bones: vertebra, skull, superior maxilla, humerus, a rib, terminal phalanx of a finger. The records show that when the bones of the limbs have been attacked there has been a marked propensity to fracture, and that the nidus has practically always been in cancellous bone. The question how the hydatid embryo gains its entry to the bone,

and the cause of its predilection for certain bones, remain obscure.

The suggestion that multilocular hydatid disease is caused by a parasite distinct from *T. echinococcus* was made by Melnikow-Raswedenkow, and appears to have impressed the late Sir Edward Stirling and Sir Joseph Verco, who gave an extensive abstract of his views in Allbutt and Rolleston's "System of Medicine" (1905). The theory is founded on the structural difference between the cysts, and especially on the presence of reproductive material on the outside of, as well as within, the cysts in the alveolar as opposed to the hydatidiform cysts; also, on the far greater inflammatory reaction in the surrounding tissues in the alveolar form. However, since it is stated by Stirling and Verco that certain cases, at any rate, of hydatid infestation of bones contain the ordinary *Echinococcus hydatidosus*, the association in Dr. Corlette's case of bone hydatid and multilocular hydatid disease of the lung becomes interesting in connexion with the ætiology. The coincidence of a double infection in one individual seems on the whole more improbable than a different form of lesion caused by the same parasite under different conditions. On the other hand, the geographical distribution of multilocular hydatid disease in man is a point in favour of its separate origin. C. W. Stiles and Ramsay Smith take this view, though the latter, working in South Australia, has found over 1000 cases of multilocular disease in animals. The problem is not yet settled, but the curious lesions in Dr. Corlette's case suggest that after all one parasite may be the cause of all hydatid infections.

A LONG list was announced last week of appointments to the civil division of the Order of the British Empire for services during the war in connexion with military and civil hospitals, command depôts, and convalescent camps. Mr. J. F. Colyer, whose work at the Croydon War Hospital has marked an epoch in the treatment of injuries of the jaw, becomes a Knight of the Order, and about 140 names appear as Commanders, Officers, and Members. We call special attention to the list of Commanders given on p. 349, since the *Times* of Jan. 31st conferred a week-end knighthood on these gentlemen, whose embarrassment was not entirely outweighed by the pleasure given to their friends.

AS we announced last week, Dr. R. J. Reece, C.B., has been appointed to be one of the senior medical officers of the Ministry of Health, and the appointment has caused much satisfaction in the service. Dr. Reece's comprehensive knowledge of preventive medicine and his judgment and ability in dealing with matters relating to public health have long been recognised by those with whom his official duties have brought him in contact.

THE LANCET, Jan. 3rd and 10th, 1920.

THE Manager will be obliged to readers who have not any further use for their copies of THE LANCET of the above dates if they will kindly return them to him at 1, Bedford-street, Strand, W.C. 2. The postage on the numbers is one penny each. He will be pleased to pay for copies returned, as he is disposing of them again to new subscribers.

THE FEES OF OUR ANCESTORS.[1]

BY SIR D'ARCY POWER, K.B.E., F.R.C.S. ENG.

OF the fees gained by the medical profession we may say with Koheleth, the gentle cynic, "That which hath been is that which shall be; and that which hath been done is that which shall be done and there is no new thing under the sun." In the fourteenth century, which is the earliest period of which I have any knowledge of surgical fees in England, the conditions were very similar to our own. Fees were high and, at any rate on the surgical side, the patient was expected a threefold debt to pay. He paid a sum of money down, he contracted to give his surgeon an annuity of so much—seemingly as long as he survived—and he gave one or more suits of clothes—liveries—yearly. This was truly a full dress fee. Here are the details of such a transaction by John Arderne, an English surgeon living between 1307 and 1390, who says, "Ask of a great man an hundred marks or forty pounds with robes and a fee of an hundred shillings yearly for life. Of less men let him ask forty pounds or forty marks without further fees; and let him take not less than an hundred shillings for never in all my life took I less than an hundred shillings." The annual income of a labourer at this time may be estimated at £4, and out of this it was possible for him to save a pound. The surgical fees, therefore, were very high, and as many of Arderne's patients are known to have lived for many years after he operated upon them he ought to have amassed a considerable fortune. I am quite unable to discover how the surgeons at this time invested their money if they did not buy land, and many of them certainly did not do so. It was hazardous to lend to the Crown; there were no funds or Government securities, and there were no Jews. Although the fees were large the surgeon could not have had more than two or three patients a year, for it was his duty to live in the castle or house until the cure was complete, although there were certain itinerant surgeons, sons of Belial, who would take the fee in advance, operate, and then disappear on the following day. It was thought that such men brought discredit on the art of surgery.

Medical Fees in the Elizabethan Period.

The Wars of the Roses impoverished England in the fifteenth century, and very little is known of surgical practice until the time of Elizabeth, when payment for services rendered had undergone a great change. It was then usual to contract to cure the patient for a given amount, paid either wholly in money or partly in money and partly in kind, or perhaps very often wholly in kind, for surgeons at any rate were not particular as to how they were paid so long as they got something. Here again are instances of each method: "On 19th April, 1569, the wife of William Selby, of London, ironmonger, complained that William Wise had not cured her husband's leg as he promised to do, and it was ordered that he should repay again of the money which he received in part of the bargain six shillings and eightpence." A few years afterwards, on Oct. 2nd, 1576, "a complaint was made by Thomas Adams against John Paradice, because the said John had received money in hand and a gown in pawn for the remainder to cure the daughter of the said Thomas, which daughter died and the poor man made request for the gown again." The custom of contracting for a cure extended throughout the surgical profession at this time, for even William Clowes, the Queen's surgeon "was complained of by William Goodnep, in February, 1575, for not curing his wife *de morbo gallico*, and it was awarded that the said Clowes should either give the said Goodnep twenty shillings or else cure the wife." Clowes very wisely agreed to pay the twenty shillings. The fee at this time was a noble, and later an angel, for those who corresponded to our consulting physicians and surgeons. The practice of an annuity still lingered, for as late as 1660 Wiseman writes of a patient upon whom he had

[1] A short address delivered at the Social Evening of the Royal Society of Medicine on Jan. 30th, 1920.

operated: "This person retired into the country and returned to London at the end of two years and acknowledged to me his cure by settling thirty pounds a year upon me during his life and paid me sixty pounds for the two years passed."

Origin of the Guinea Fee.

A new coin—the guinea—was struck in 1660, and it was quickly utilised by the doctors, who demanded it for a fee somewhat to the displeasure of the older generation, for the author of the "Levamen Infirmi" writes as late as 1700: "To the graduate in physic his due is about ten shillings, though he commonly demands or expects twenty; those that are only licenced physicians their due is no more than six shillings and eightpence, though they commonly demand ten shillings. A surgeon's fee is twelvepence a mile for his journey far or near; ten groats (3*s.* 4*d.*) to set a bone broke or out of joint; and for letting of blood one shilling; the cutting off or amputation of any limb is five pounds, but there is no settled price for the cure." The value of the noble, the angel, and the guinea, the successive units of fee in England, was never stable; the noble and angel varied from 6*s.* 8*d.* to 10*s.*, whilst the guinea, which was at first worth twenty shillings, sometimes rose as high as 30*s.*, and for many years was never less than 21*s.* 6*d.* A guinea was the regular consultation fee from the time of its introduction until about 1870, when the cost rose to two guineas. The two guinea fee remained until 1918, when it became three guineas.

Fortunes Made by Medical Men.

Very large sums of money were earned by successful physicians and surgeons in London during the eighteenth and nineteenth centuries, as there were few consultants in the provinces, and wealthy patients and serious cases gravitated to London. Dr. Radcliffe and Dr. Mead made their fortunes by seeing patients at their own houses or in consultation at a guinea apiece, whilst they wrote prescriptions for patients whom they had never seen (from descriptions of the case given by the apothecary in attendance) at half a guinea a bill. Dr. Radcliffe, when he was living in Bloomsbury-square, charged five guineas for a consultation at Bow. No inconsiderable portion of a successful consultant's income came from long journeys, and it is marvellous how they not only became inured to the fatigue and discomfort of travelling on bad roads, but were actually able to produce good literary work in their carriages. There is the well-known story of the collective power of the guinea in the case of the physician who declined to accept a fee from his patient, but was unable to refuse when the patient gave him a bag full of guineas filled by the simple process of dropping a coin into it after each visit; or the other story of the doctor who had his fee hurled at him by an eccentric patient and merely remarked that he would pocket the insult. There are several large fees on record. One of the best known is that received by Dr. Dimsdale, who left England at the desire of the Empress Catherine of Russia on July 28th, 1768, and returned in 1769. He introduced the inoculation of small-pox into Russia, and inoculated the Empress and about 140 other persons. He was rewarded for his services with the dignity of a Baron of the Empire, a present of £10,000, and an annuity of £500. The Dowager Lady Dimsdale has kindly referred to Baron Dimsdale's diary, and tells me that although the annuity is mentioned nothing is said about the present of money.

Another celebrated fee was received by one who, I am glad to say, is not a predecessor, for he is in robust health, and will, I hope, long remain so. It was a lakh of rupees, which at the present rate of exchange is worth £12,000, and by his kindness I am able to show you the illuminated tablet in Persian which accompanied the gift. Sir Peter Freyer received the fee in August, 1888.

Country Practitioners' Fees.

Very little seems to be known about the fees charged by country practitioners. Dr. Edward J. Cross, of St. Neot's, has kindly lent me a very interesting ledger showing detailed accounts of the firm, which still exists, for the years 1742–1755. Each item is priced, and ranges from 2*s.* for a bottle of medicine to 3*d.* and 6*d.* for a pill, whilst a visit, or "iter" as it was called technically, was from 2*s.* 6*d.* to 4*s.* 6*d.*, according to the distance. The total account rarely exceeded £5, and was usually under £1. The patients paid at long intervals, and generally only part at a time. We know from the evidence given by Abernethy at the Royal Commission in 1834 that these charges were the usual ones in the country, for he states that "I was called into the country to see a patient in consultation with his family practitioner and I ordered the patient a pill. When we left the room the doctor said, 'Do you mind making that pill into a mixture?' I said, 'What difference does it make?' He replied, 'None to you but much to me. If you order him a pill I shall have to come to-morrow to see how it has acted and I shall only get threepence for my trouble and I must supply the pill, but if you put it into a bottle I shall receive a more adequate fee.'" Indeed, until 1815 the general practitioner was remunerated entirely by the amount of medicine he could induce his patients to swallow and not at all for his skill and attention. The end of this bad practice was a side issue of the tax upon glass imposed in 1812. Bottles became so expensive that the general practitioner was obliged to reconsider his position, and thence arose the agitation which culminated in the Medical Act of 1815. The practice of extensive dosing lingered amongst the people until our own time, and the familiar expression of "a blue pill and black draught" is a reminiscence of the time when 6 or 12 1-oz. phials were sent out in packets neatly wrapped up in white paper, each phial having a single blue pill in a small box, with white ends and a red body, perched upon the top of the cork. The price was 1*s.* 9*d.* a draught and pill, and there was, I presume, a handsome profit, which was lost when 8-oz. and 12-oz. mixtures came into vogue.

Conclusion.

And thus I come back to Koheleth's statement that there is nothing new under the sun, for if we consider the relative purchasing power of money in the eighteenth and twentieth centuries our predecessors were better paid than are the majority of the medical practitioners at the present time. The type of practice has changed; the type of mind remains. The older generations demanded bleeding and plenty of physic; the modern generation asks for serums, vaccines, and intravenous injections.

THE SCOTTISH BOARD OF HEALTH:
CONSULTATIVE COUNCILS.

IN the Act which established the Scottish Board of Health provision was made for the setting up of Consultative Councils to advise and assist the Board in connexion with Scottish health matters. The constitution and functions of these Councils were defined by an Order in Council of Dec. 20th last. The Councils, which are four in number, deal with the following matters: (1) Medical and allied services; (2) National Health Insurance (Approved Societies' work); (3) local health administration and general health questions; (4) Highlands and Islands.

The appointment of the members of the Councils rests with the Board, who have now completed their selection of the personnel of each of the four Councils. The membership of the several Councils as announced by the Board is as follows:—

1. MEDICAL AND ALLIED SERVICES.

Orlando Charnock Bradley, Esq., M.D., D.Sc., M.R.C.V.S., Principal of the Royal (Dick) Veterinary College, Edinburgh; Vice-President of the Royal College of Veterinary Surgeons; President of the National Veterinary Medical Association.

A. J. Campbell, Esq., M.D., Secretary of the Berwickshire Local Medical and Panel Committees.

A. K. Chalmers, Esq., M.D., Medical Officer of Health for the City of Glasgow.

D. Elliot Dickson, Esq., M.D., Convener of the Fife Colliery Surgeons' Committee.

J. R. Drever, Esq., M.B., Scottish Medical Secretary of the British Medical Association.

Miss Annie W. Gill, Lady Superintendent of Nurses, Edinburgh Royal Infirmary.
John Glaister, Esq., M.D., Professor of Forensic Medicine and Public Health in the University of Glasgow.
Professor Matthew Hay, M.D., Medical Officer of Health for the City of Aberdeen.
John Rutherford Hill, Esq., Resident Secretary of the Pharmaceutical Society in Scotland; Secretary of the General Council of Panel Chemists (Scotland).
Sir Donald MacAlister, K.C.B., M.D., Principal of the University of Glasgow; President of the General Medical Council.
John Yule Mackay, Esq., M.D., LL.D., Principal of the University College, Dundee.
Sir James Mackenzie, M.D., F.R.C.P., Clinical Institute, St. Andrews; Consulting Physician to the London Hospital.
Sir Robert William Philip, M.D., F.R.C.P., Professor of Tuberculosis and Senior Lecturer on Clinical Medicine in the University of Edinburgh; President of the Royal College of Physicians, Edinburgh.
James Maxwell Ross, Esq., M.B., C.M., M.B.E., Medical Officer of Health and Chief School Medical Officer for the County of Dumfries.
Miss Laura Stewart-Sandeman, M.D., late Controller of Medical Services to Queen Mary's Army Auxiliary Corps, Overseas.
Sir Harold J. Stiles, K.B.E., Regius Professor of Clinical Surgery in the University of Edinburgh.
F. Tocher, Esq., D.Sc., Public Analyst for the County of Aberdeen, &c.; Honorary Secretary of the Association of Public Analysts of Scotland.
Norman Walker, Esq., M.D., General Medical Council.
George Williamson, Esq., M.D., Chairman of Aberdeen Local Medical Committee.
John A. Young, Esq., L.D.S., J.P., Vice-President of the Odonto-Chirurgical Society of Scotland; Convener of the Public Health Committee, Edinburgh Town Council.

2. National Health Insurance (Approved Societies' Work).

Thomas J. Addly, Esq., Secretary of the Scottish Professional Assistants' Society and of the St. Andrews and Edinburgh Diocesan Insurance Society; President of the Edinburgh, Leith, and District Friendly Societies' Council.
Neil Beaton, Esq., National Amalgamated Union of Shop Assistants, Warehousemen, and Clerks; ex-President of the Scottish Trade Union Congress.
Hugh Berrie, Esq., Secretary of the British Order of Ancient Free Gardeners.
David Bertram, Esq., J.P., High Chief Ranger, Ancient Order of Foresters' Friendly Society.
Miss May Dunbar, Secretary of the Scottish Women's Friendly Society.
James Gold, Esq., Secretary of the Scottish Miners' Federation Friendly Society.
John C. Hendry, Esq., J.P., Secretary of the Brechin Mill and Factory Operatives' Union; President of the Scottish Textile Workers' Federation.
Thomas McMeekin, Esq., Glasgow District Secretary of the Independent Order of Rechabites; President of the Scottish Conference of Friendly and Approved Societies.
Miss Annie McRobbie, Secretary of the North of Scotland Women's Insurance Society.
W. S. Rimmer, Esq., J.P., Inspector (Glasgow District) Prudential Assurance Company, Limited.
W. M. Shaw, Esq., Manager of the Scottish Legal Health Assurance Approved Society.
Miss Eleanor Stewart, Workers' Union.
William Thomson, Esq., Secretary of the Scottish Coöperative Friendly Society.
Peter Webster, Esq., Secretary of the Scottish Horse and Motormen's Association.
William Wood, Esq., Secretary of the Scottish Rural Workers' Friendly Society.

3. Local Health Administration and General Health Questions.

The Most Honourable the Marchioness of Aberdeen and Temair, President of the International Council of Women.
Robert Allan, Esq., Secretary of the Scottish Trade Union Congress.
Sir Henry Ballantyne, D.L., Chairman of the Royal Commission on Housing (Scotland).
Joseph F. Duncan, Esq., Secretary of the Scottish Farm Servants' Union.
J. B. Fergusson, Esq., Ayr County Council.
Andrew Grierson, Esq., Town Clerk of Edinburgh.
Joseph Johnstone, Esq., M.P., Renfrew County Council; President of the Scottish Association of Insurance Committees.
William Jones, Esq., Clerk to Glasgow Insurance Committee.
H. S. Keith, Esq., ex-Provost of Hamilton.
W. W. Kelson, Esq., Chief Sanitary Inspector, Paisley.
Mrs. Mary Burns Laird, Scottish Labour Housing Association.
Lady Leslie Mackenzie, Vice-Chairman of Edinburgh Insurance Committee; President of the Scottish National Association of Health Visitors and Women Sanitary Inspectors.
W. M. Marshall, Esq., Clerk to Lanarkshire Insurance Committee; Secretary of the Scottish Association of Insurance Committees.
Sir Thomas Munro, K.B.E., County Clerk of Lanarkshire.
Thomas G. Nasmyth, Esq., M.D., D.Sc., ex-President of the Scottish Society of Medical Officers of Health; formerly Medical Superintendent of Perth Infirmary.
Malcolm W. Scott, Secretary of the Society of Inspectors of Poor and Poor Law Officers of Scotland.
James Stewart, Esq., Glasgow Town Council (Convener of Health Committee).
Joseph Sullivan, Esq., M.B.E., Lanark County Council; Secretary of the Scottish Labour Housing Association.
James Thomson, Esq., City Engineer, Dundee; Vice-President of the Institute of Municipal and County Engineers.
W. E. Whyte, Esq., O.B.E., District Clerk, Middle Ward of Lanarkshire.

4. Highlands and Islands.

Her Grace the Duchess of Atholl, D.B.E., Member of the Highlands and Islands Medical Service Committee; President of the Perthshire Federation of District Nursing Associations.
John Birnie, Esq., J.P., ex-Provost of Inverness; Chairman of Inverness Burgh Insurance and Local War Pensions Committees.
William Durran, Esq., J.P., ex-Provost of Thurso; Chairman of the Insurance Committee for the County of Caithness and of the County Education Authority.
Rev. Wm. Fotheringham, J.P., Vice-Chairman of Zetland County Insurance and Local War Pensions Committees; Late Vice-Convener of the County and Chairman of the Mainland District Committee.
Lady Susan Gilmour, late Member of the Highlands and Islands (Medical Service) Board.
Miss Bella Jobson, Secretary of the Scottish Fish Workers' Friendly Society.
Mrs. Helen Kerr, Member of the Royal Commission on Housing (Scotland).
The Maclachlan of Maclachlan, Convener of the County of Argyll.
Miss Sybil M. Macphail, Honorary Secretary of the Ladies' Highland Association.
Dr. A. C. Miller, J.P., Chairman of the Highlands and Islands Subcommittee of the British Medical Association (Scottish Committee).
Wm. J. Munro, Esq., J.P., Clerk to Easter Ross District Committee.
Dr. Donald Murray, M.P., Late Medical Officer of Health for Lewis.
Dr. James B. Simpson, J.P., D.L., Vice-President of the Sutherland Nursing Association and Secretary to the County Local Medical Committee.
Miss Margaret M. White, Superintendent of Queen Victoria's Jubilee Institute for Nurses (Scottish Branch).

Each Consultative Council will, in terms of the Order in Council, appoint its own chairman. Mr. George A. Birse, Scottish Board of Health, 125, George-street, Edinburgh, will act as secretary to the Councils.

MEDICAL CARE IN INDUSTRY.

THE appeal of modern preventive medicine, directed, as it is, at the individual, instead of being confined as heretofore chiefly to the sanitary conditions of life, may be said to be concerned with three stages; (1) Obtaining a healthy population by supervision of births and infant life, what is known as maternal and infant welfare; (2) supervising the growing child, carried out through school medical service; and (3) maintaining in health the adult worker.

This country is probably abreast, if not ahead, of other civilised countries with regard to the first two stages, but we are behind America with regard to the last. Something we are doing through the activities known as "industrial welfare," which received, through the influence of the Ministry of Munitions, a great impetus during the war in the engineering trades; and we have to-day a powerful Welfare Supervisors' Association over 1000 strong, an Industrial Welfare Society (representative of an important group of employers), the powers of the Home Office in relation to welfare accommodation, and the work carried on by the training section of the Ministry of Labour. But the work, as readers of semi-popular journals and the daily press can testify, is steadily drifting into lay hands; the medical profession is only called in here and there to help; it is not as it ought to be the fons et origo of this important branch of preventive medicine. Presently the profession will discover that vested interests have been created which stand in the way of its true recognition and influence.

Industrial Medicine in the United States.

Advance in the United States is proceeding on different lines, and these are clearly indicated by the Public Health Bulletin, written by C. D. Selby, on the Medical and Surgical Care of Industrial Workers.[1] Industrial medicine is therein recognised as a new and interesting science, a branch of the science of industrial management on the one hand, as it is of preventive medicine on the other; "a compromise between the ideals of medicine and the necessities of business." Mr. Selby defines industrial medicine as "the theory and practice of medicine applied to the purpose of preventing

[1] Studies of the Medical and Surgical Care of Industrial Workers. By C. D. Selby. Public Health Bulletin, No. 99. 1919. United States Public Health Service, Washington.

and alleviating sickness and injury among industrial workers in order that they may enjoy the benefits of continuous productive employment"; and he points out its value both to employers and to workers.

Adoption of work on the lines of this definition gives to industrial medicine a clear line of action and a duty to fulfil, so that workers shall no longer feel themselves slaves,

> Hardened to hope, insensible to fear,
> Scarce living pulleys of a dead machine,
> Mere wheels of work and articles of trade,
> That grace the proud and noisy pomp of wealth!

The report is based upon information obtained from 155 industrial establishments as to the medical activities carried on. These establishments employed 20 consulting physicians, 68 whole-time physicians, 50 part-time, and 37 on call—i.e., 175 physicians in all—and in addition 13 dentists, while there were dispensaries at 137. These figures show how this new science in the States is under the direction of the medical profession. The factory doctor can make his value felt in every stage of industrial life:—

(i.) At industrial birth—in selecting workers suited to their work. The effect produced can only be appreciated by contrasting it with the present way of engaging workers by the method of trial and error with its attendant financial waste and instability for labour: under this method it is usual to-day to engage annually 1000 new workers to maintain a personnel of 1000, and Mr. Selby quotes one company in which the labour turnover for the year 1917 was somewhat over 400 per cent. Every engagement represents a cost of about £1. Careful selection lessens the turnover by not less than two-thirds, and the money saved is sufficient of itself to carry the cost of industrial medical service.

(ii.) Throughout industrial life—in supervising the health of the workers and the hygiene of workplaces. Medical attention to personal ailments, small at their start, lessens lost time and promotes working efficiency; this is given at the ambulance room or dispensary. Tours of inspection are required to ensure adequate sewage and waste disposal, washing and toilet facilities, ventilation, illumination, heating or cooling apparatus, blowers, exhaust draughts, floor and window cleaning, and pure drinking water. Machinery, tools, and methods of work call for medical attention to reduce to a minimum hazards to health and body. Health instruction and dental prophylaxis are essential parts of the work. Supervision of the provision, during attendance at the factory, of food suitable in quantity and quality to the work is a physiological question. Hours of labour in relation to fatigue, with facilities for rest and recuperation, can only be scientifically arranged by a medical expert in industrial hygiene. Accident prevention, effected by the safety-first movement, is essentially psychological in aspect. These are some of the medical aspects of industrial life.

(iii.) At threatened industrial demise—in restoring to productive activity those who have temporarily broken down or sustained some incapacitating injury. Organisation of first-aid treatment and ambulance squads are called for here. Out-patient work, medical and surgical, at the ambulance station makes a constant demand for service. Visitation of sick or injured workers in their homes is often needed. After-care and training of those in any way maimed can, in medical hands, often restore to usefulness those who must otherwise drift among the unemployable; a discovery which the Pensions Ministry in this country is now demonstrating for the enlightenment of industry. Mr. Selby tells of two blind men found in the plant of a large electric motor company, and of 51 crippled employees at the factory of an Ohio shoe company!

Where and How Medical Service should Start.

The report considers that: "An establishment employing anywhere from 200 to 500 people is warranted in having a dispensary; that such an establishment is justified in having either a whole-time or part-time physician; and that if he be on a part-time basis his services may advantageously be augmented by a trained female nurse or a person who has been taught to handle the routine work under his direction."

The need in larger establishments is, of course, still greater; and where from 500 to 1000 persons are employed the part-time services of a dentist for prophylactic service is considered warranted. The personnel and organisation of medical departments in establishments employing different numbers of employees is usefully discussed and set out. But attention is drawn to the need for physicians trained in industrial medicine: those who drift into the work tend to drift with it; and those who act as "finger wrappers" for the money it gives them are a reproach to the science. What is wanted is men "giving their brains and hearts to industry, striving at all times to better conditions among the working people, and to benefit industry itself." The advice given to the industrial doctor for arranging his work is, "organise, deputise, and supervise"; and training and aptitude are required for its adoption. The place of the dispensary attendant and factory nurse is set forth clearly, and the need for adequate clerical staff.

Good plans and illustrations of dispensaries and medical quarters are given in the report, which is worth consulting on this account alone; and attention is also directed to equipment, furniture, and fixtures. The practical information given in these portions of the report will be of the greatest use to those called upon to advise manufacturers wishful to embark upon this remunerative branch of industrial management.

Industrial Medical Activities.

The following summary is worth quoting verbatim to indicate the wide field of work which comes within the boundaries of industrial medicine:—

1. Treatment of injuries in dispensary, home, or hospital, by physician, attendant, or consultant, including orthopædic and reconstructive surgery when necessary.
2. Opinions as to disabilities from injury and recommendations as to compensation awards.
3. Rehabilitation of impaired workers.
4. Consultation and service, including dental, for the alleviation of ailments that become evident during hours of employment.
5. Assistance in obtaining skilled medical, dental, and nursing attentions when employees themselves are unable to procure them.
6. Visits on sick absentees to assist in treatments, to render social aid, or to instruct.
7. Regular factory inspection designed to uncover conditions that are inimical to health, and written recommendations to proper officials for their correction.
8. Studies of the effects of methods, processes, and machinery operations upon health and body functions, relating to posture, eyestrain, monotomy, speed, poisons, &c. Written recommendations to proper officials when effects are found to be harmful, and advice to employees which will enable them to minimise the harmful results of processes from which hazards cannot wholly be removed.
9. Physical examinations of applicants for employment, and written recommendations to employing officers relative to applicants' fitness for work.
10. Examinations of applicants for re-employment when the periods of absence warrant them.
11. Examinations of employees when their shop efficiency falls off, unless the reasons are evidently not physical; advice and treatment, or aid in obtaining treatment, to such as need it; and written recommendations to foremen when deemed wise.
12. Examinations of employees returning to work after sickness or injury and written recommendations to employing officers and foremen if employees are not fully restored.
13. Examinations of employees who do not feel well or do not appear well to their foremen or fellows; advice to employees when it is indicated; and written recommendations to foremen if altered working conditions are essential.
14. Examinations of workmen ceasing employment after having been exposed to special health hazards and explicit records of their conditions.
15. Frequent examinations to follow up previous findings.
16. Monthly examinations of all process workers, those who may be engaged in any work that may in any way have ill effects, and of food handlers.
17. Epidemiological service including intimate coöperation with municipal health authorities.
18. Health instruction by personal talks in the homes or factory, by lectures, posters, or pamphlets.
19. Records of data that will assist in the prevention of accidents and sickness.
20. Records of facts that will enable employers and employees to obtain equitable compensation adjustments.

21. Records of information that will show the scope and value of all medical activities.
22. Studies of facts and data with the view to developing scientific knowledge and usefulness.
23. Contributions to scientific and trade publications.
24. Attendance at meetings of scientific societies.
25. Constant efforts to merit and retain the confidence of the employees and the approbation of the employers.
26. Frequent conferences with those in authority.
27. Coöperation with other establishments and local, State, and National Health authorities.
28. And finally, the admonition to organise, deputise, and supervise, remembering always that anything which is important enough to do is sufficiently important to be done well.

Records and Reports.

Work of the kind here indicated cannot be done without organisation, and organisation is not possible without records and reports. Mr. Selby has taken much trouble in setting out and discussing the value of the records found in use, and the way in which they should be employed to ensure efficiency and rapid work. The diversity of forms adopted makes him appeal for some standardisation: and we cordially agree that much advantage would accrue therefrom. In this country we understand that an effort in this direction is likely to be made; and that a set of forms recommended for use may soon be placed before manufacturers by a Government department.

No useful purpose would be served by discussing the forms reproduced in the report at length; we need only point out that while summary reports are needed by industrial officials, which should be as simple and concise as possible, they must be based on detailed records which incidentally are invaluable for the pursuit of scientific knowledge. Every industrial physician should be a research worker in this new field, and make full use of the experiments continually, even though unintentionally, being carried out in the establishment he is attached to. The need for knowledge in industrial medicine is to-day great and pressing when the whole world is calling for production, production, and again production; it is required to enable the industrial worker to multiply his output without detriment to his health and contentment—that detriment which is the foundation of industrial unrest and strikes, with their inevitable drag on the wheels of social progress.

Industrial medicine can here play an important part, because, as Mr. Selby justly writes, it "is not only humane but essential to production. It is beneficial to workers and profitable to employers. It offers splendid advantages to physicians for the development of careers in a field of rapidly growing importance, vital with opportunities for service to humanity."

ALLEGATIONS OF PROFITEERING:
A COMPLAINT FROM THE MEDICAL RESEARCH COMMITTEE.

AT a meeting of the Complaints Tribunal of the Central Committee, held on Jan. 30th at the Hotel Windsor, Victoria-street, S.W., a complaint was investigated which had been lodged by the Medical Research Committee, of 15, Buckingham-street, Strand, W.C., regarding the price of a gallon of collodion solution which was supplied to them by the British Zylonite Co., Ltd, of Hale End, London, E. The complainants alleged that they were charged £14 10*s*. 7*d*. for a gallon of the solution which they had previously purchased from the respondent company at a cost of 17*s*. 6*d*.

Dr. H. W. Dudley, who appeared in support of the complaint, mentioned that the Medical Research Committee conducted general medical research for the purpose of combating disease. He recalled the fact that in 1915 a paper was written in which the author mentioned that the British Xylonite Co. were willing to supply the solution, which was essential for some research work. That was not a customary step to take when research work was published, and the result would be that other people would apply for the solution when it was recommended by a known research worker. In September, 1915, a purchase of two gallons of the solution was made from the respondents at a cost of 17*s*. 6*d*. a gallon. Last September a gallon of the solution was ordered, and when the invoice arrived the Committee was intensely surprised to find that a charge was made of £14 10*s*. 7*d*. It refused to accept the solution, which was returned to the company, who sent them a credit note for the amount charged. The Committee extracted a small portion of the solution from the bulk, which it offered to pay for, but no charge was ever made for it. The witness gave it as his opinion that there was no reasonable explanation for a rise in price of over 1500 per cent. The Committee brought the complaint as it had in the first instance recommended the solution publicly, and it also felt that it should take strong exception to excessive charges made for materials which were used in research work.

In answer to the Chairman of the tribunal (Sir Herbert Neild, K.C., M.P.) it was stated by Dr. Dudley that the Committee was now purchasing a solution elsewhere which answered its purpose at a price of about 28*s*. a gallon.

Replying to Mr. A. Brammall, solicitor, who appeared for the company, the witness agreed that the price of the ingredients used in the solution, such as ether, methylated spirit, and nitro-cellulose, had considerably advanced in price during the last few years, while labour had also gone up considerably.

Dr. Dudley further stated that the formula for the solution was supplied to the manufacturers by the Medical Research Committee. He was not aware that before the war the solution could only be obtained from Germany, and pointed out that there was nothing very difficult about the making of the stuff. He did not know that in 1915 the respondent company was specially asked to make the solution as it could not be obtained elsewhere.

Mr. Brammall said that the charge of £14 was a mistake and was never intended. If, when the Committee complained, it had mentioned that it had been charged £14 the whole matter would have been rectified at once, and a full explanation given. The correct charge was 37*s*. 6*d*. The solution was sold as a solid or in liquid form. As a solid the price was 37*s*. 6*d*. per pound, while the same amount was charged for a gallon. The explanation was that when a gallon of the solution was evaporated there remained 1 lb. of solid matter which were called "chips." When the employee of the company to whom the order was handed saw that a gallon was ordered he thought that a gallon of the solid substance was required. He estimated a gallon as being equal to 3½ kilos or 7 lb. 12 oz., and the charge of £14 odd was made out in that way. His clients were specially requested to make the solution in 1915 when the supplies from Germany were exhausted. The company did not want to make it, and they only consented from patriotic motives, as they were told that medical people required it for the relief of suffering manhood. Literally and truly they only commenced the manufacture from philanthropic and patriotic motives. Between 1916 and 1919 the turnover of the company was four millions sterling, while in the four years the sales of the solution only amounted to £80. From a business point of view the company ought never to have touched it, and would rather not have had the business. The company had a very high reputation in the country. He also pointed out that between 1915 and 1918 no orders for the solution were received, and only "chips" were sold by the company.

Mr. T. R. Brooke, the commercial manager of the company, said that in 1915 he was told by the Medical Research Committee that Schering's collodion was no longer procurable, and, as it was required, they undertook to produce collodion, being told how it was produced. The price had increased from 17*s*. 6*d*. a pound or gallon to 37*s*. 6*d*.

The Chairman: That increase would not be complained about.

Mr. Brooke further stated that when the complaints were received there was nothing in the letters to show that £14 had been charged. It was not until they

received a communication from the tribunal that they realised a mistake had been made.

Sir William Pearce, M.P., the treasurer of the Manufacturing Chemists' Association, gave evidence of the high reputation which the respondent company enjoyed.

Mr. Brammall: Do you think the company would intentionally make a charge of this sort?—My experience of the company has been a very long one, and I am certain that no one in a responsible position would do anything of the sort.

What reputation do they bear in the commercial world?—The highest possible character. They are a firm whose word may be taken. Their word is their bond.

Mr. Claud Walterer, a clerk in the employ of the company, stated that he was responsible for the mistake. He found on referring to another order that 37*s*. 6*d*. a lb. was charged, and reckoned a gallon of the "chips" as being 3½ kilos.

In answer to further questions the witness said that one other mistake had been made in dealing with the solution. Messrs. Burroughs, Wellcome and Co. ordered a quart and were charged £3 12*s*. 7*d*. No complaint was made by the buyers, but when the present case came to light an investigation of the company's books took place. The mistake made in regard to Messrs. Burroughs, Wellcome and Co. was discovered, and a refund was made. He was the clerk responsible for the error.

The Chairman, in giving the decision of the tribunal, said they were of opinion that this case was an exceedingly grave one. The explanation forwarded by the respondents on Jan. 2nd was not what one would call a complete and full statement of the facts in relation to the sale of the article. What the tribunal thought was responsible was a system which had grown up in modern times of calling upon departments to justify their existence; and the tribunal rather thought that the department, in relation to these two applications for the liquid article, might have been careless, more than careless, in regard to the method of booking them up, in order to justify themselves in relation to the general trade of the concern. The tribunal were, of course, confronted with the fact that this was a limited company, and one which was doing a very extensive business, and if the case were sent for prosecution it would rest upon the individuals constituting the company to justify themselves in order to take advantage of the section of the Act relating to limited companies. The tribunal thought that, upon the whole, it would suffice if they marked their displeasure at the way in which this transaction had been carried on by saying that, putting the most moderate construction upon it, it had been grossly careless, and such as to produce the impression in the minds of those accustomed to business, and to the precautions ordinarily taken, that it was a gross and bad case. For all that, they thought that the blame was not so much upon those who would reap the benefit of the overcharge as upon the careless way in which those in charge of the department had behaved. It was almost incredible that, two letters having been received from a public department whose custom one would have thought the respondents would have tried to retain, there was, in the interval between the making out of the invoice and the credit note, apparently no attempt to inquire more particularly into the matter, the goods being simply accepted when returned and the credit note sent, leaving the department to get the material when and from where they could. The tribunal entertained very grave doubts as to whether they were doing quite the right thing, but on the whole they thought that a censure was sufficient, and that the complaint, subject to that censure, must be dismissed.

Hospital Sunday in Bristol was observed on Jan. 25th. A strong appeal was made by the Lord Mayor, who stated that in one year 101,080 patients were treated at an expenditure of £71,000, which sum was nearly £18,000 more than the year's income. Last year the record amount of £5000 was raised, and this year it is confidently hoped that the collections will be still larger.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

The Irish Public Health Council.

THE Irish Public Health Council did much important business at its last session held on Jan. 20th to 22nd. On the first day the Council received a deputation representing the National Association of Approved Societies. The deputation spoke chiefly of the necessity for providing an efficient medical service for insured persons and their dependents, and pointed out that if a system of medical benefits or treatment for insured persons were established in Ireland considerable funds from insurance sources would be available towards financing such a medical service; but it was essential that it should not be in any way associated with the Poor-law Medical Service. A member of the deputation, who represented the Prudential and the National Amalgamated Approved Societies, stated that the incidence of sickness among their members was twice as great in Ireland as in England, and he attributed this to the absence in Ireland of a proper system of medical treatment. In the course of a discussion which followed, the deputation stated that the Approved Societies would consider favourably the question of allocating towards hospital and allied services, and for the treatment of dependents, part of any surplus funds which might be available after the forthcoming valuation. The deputation also agreed that there would be no objection to a medical service system under which insured persons would pay the medical practitioners and who would also be responsible for the treatment of persons unable to pay. Subsequently the Council arrived at important decisions concerning the following matters: The constitution and function of the proposed central health authority in Ireland and of county health authorities; the establishment of an Irish Medical Service, which would provide medical treatment for insured persons (and, if possible, for their dependents) as well as for persons unable to pay; and the reorganisation and coördination of the hospital system in Ireland, with a view to providing treatment for the classes able to pay, not only in the county institutions, but also in the voluntary hospitals in the larger cities. These questions and previous decisions of the Council were referred to a Drafting Committee, consisting of the chairman, Dr. E. Coey Bigger, Sir Joseph A. Glynn, and Dr. R. J. Rowlette, to be embodied in the report to be made by the Council to the Chief Secretary.

Belfast and the Irish Public Health Council.

A meeting of Belfast doctors—summoned by the chairman and secretary of the Local Medical Committee, through a notice in the public press, "to review the present position of the medical profession in relation to the new Public Health Council and to consider the possibilities of State Medical Service and kindred schemes"—was held in the Medical Institute on Jan. 30th, when there was a large attendance. The chairman of the Local (Belfast) Medical Committee, Mr. R. J. Johnstone, who presided, gave an account of the present position. He explained that the Irish Public Health Council, who was at present engaged in drafting its report, would probably make £3 a week the limit of income of those to be attended gratuitously, that there would be a National Health Service, not whole-time, applicable to dispensary doctors, but that the real difficulty was in dealing with industrial areas. He pointed out that, in any communications with the Irish Public Health Council, the Irish Medical Committee had made it quite plain that it could not pledge the medical profession until it was first consulted as a body. A long discussion followed, which showed that there was a marked cleavage between the views of those engaged in dispensary practice and those doing insurance work. Some of the speakers pointed out that the conditions had so altered since the report of the Viceregal Commission in 1906 that it could not be said now that the profession as a whole supported any National Health Service as applicable

alone to Poor-law doctors. Undoubtedly, all were most anxious to improve the condition of dispensary doctors, but it was felt that a National Medical Service applicable to them alone was, in present circumstances, a misnomer. Those representing the insurance doctors pointed out that one-half of the total insured population of Ireland were in Ulster and one-fourth in Belfast, and they asked how the present dispensary doctors could attend to this vast body. Again, some of the audience were in favour of the extension of medical treatment to the insurance plan now in practice in Ireland, while others objected. Finally, it was unanimously agreed that the Belfast medical profession could not commit themselves to express any opinion until they had before them the complete scheme promulgated by the Irish Public Health Council, and a large committee, representative of every branch of the profession in Belfast, was appointed to consider the scheme when made public and to report back to a meeting of the whole of the Belfast medical profession at a future date.

Poor-law Salaries.

All over the country the Poor-law medical officers are showing much activity in pressing for increase of salaries. The medical officers of the Castlecomer union, having failed to receive the increases they thought fair, have given notice that they will refuse to attend any patient, private or otherwise, until their demands are met. At a recent meeting of the medical men of the county and city of Kilkenny the following resolution was passed:—

"That the initial salary for all dispensaries in the county Kilkenny be £300 per annum, with £5 annual increments until a maximum of £365 is reached, and to be retrospectively applied."

Ulster Medical Society.

A meeting of the Ulster Medical Society was held in the King Edward Memorial Hall of the Royal Victoria Hospital on Jan. 29th, Mr. A. Fullerton, the President, in the chair. The President introduced Major M. Sinclair, who gave a demonstration of his methods of treating fractures developed during the late war. The lecturer fully explained the Thomas's splint, and showed how practically every injury of the extremities could be treated by it, with various modifications to suit particular fractures. There was a crowded attendance of surgeons and general practitioners from the city and surrounding districts. At the close of the demonstration Professor Thomas Sinclair proposed a vote of thanks to the lecturer and said that he had, while acting as consultant in France, utilised Major Sinclair's methods, and had brought the surgeons working under him to Major Sinclair's wards at Wimereux for instruction. He commended the methods demonstrated that evening to the careful consideration of the practitioners in the north of Ireland, and hoped that future generations of medical students of the Belfast Medical School would continue to benefit by Major Sinclair's work.

Hospital Conditions in Belfast.

At the annual meeting of the Forster Green Hospital, Belfast, held on Jan. 27th, it was reported that 202 cases were treated in this institution for consumption and chest diseases during 1919. The corporation of Belfast having now a sanatorium of their own for their cases, the Forster Green Hospital Committee has made a new arrangement with the authorities of co. Down, co. Antrim, and co. Armagh for the admission of tuberculous patients. Unfortunately, the work of the institution was considerably interrupted in the second quarter of the past year owing to an outbreak of typhoid fever, due probably to an undiscovered "carrier," as no evidence of the origin of the epidemic could be discovered. Financially, at the beginning of 1919 there was an adverse balance of £1942 10*s.* 11*d.*, and this has since been increased, by the extra expenditure entailed by the epidemic, to £2946 14*s.* 11*d.*

At the annual meeting of the Belfast Hospital for Skin Diseases, held on Jan. 31st, it was reported that during the past year 1035 patients have been treated. This institution was established in 1865, almost the first hospital founded in the United Kingdom for the special treatment of skin diseases and allied conditions.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Malaria and Scabies in Vienna.

THE series of diseases under which the population of this city is suffering as a near or remote after-effect of the war has been augmented by an explosive appearance of scabies, which in peace time was rather scarce here. The trouble was so serious that extraordinary measures had to be adopted to control the outbreak. The population have no soap, cannot afford to bathe owing to the lack of fuel, and even the primitive laws of cleanliness are disregarded owing to the extreme poverty and the mass-accumulation of dwellers in slums. Therefore in some of the hospitals of the external districts arrangements have been made for a rapid "scabies cure," consisting in repeated applications of Wilkinson's ointment all over the body, followed by baths with coarse soap, the treatment lasting three hours. Meanwhile the garments are disinfected by hot steam. 300 patients can be dealt with daily in each hospital in that way. Another disease, formerly rare with us, now very frequent, is malaria. Large numbers of our soldiers stationed in Italy and the Balkans acquired malaria. A recent calculation showed that in Vienna alone over 27,000 cases were reported to the military authorities. A special malaria hospital has been established with a large staff of competent qualified medical men to do the special work, and the general practitioners have been warned of the possibility of malaria as an underlying cause of obscure diseases amongst the population. Chiefly subtertian and quartan forms have been noticed, mostly in men over 50, who were used as an army of occupation.

Decrease of Air Pollution from Lack of Coal.

A peculiar feature of the practical absence of coal-supply in Vienna is the change in the pollution of air by the products of combustion. In comparison with the results obtained in the laboratories of the meteorological offices in 1914 we find a decrease of more than 65 per cent. of soluble matter, whilst the insoluble matter decreased only by 40 per cent.—a sign of the inferior quality of the fuel now available. A large percentage of the factories are standing still, households get only a fraction of their former supply, and contamination by SO_2 is practically zero. The fogs often noticed here, which used to be pea-soup coloured, now have more the appearance of sea-fog. Perhaps the marked drop of acute nasal and bronchial affections which has been noticed is due to these changes in the air pollution. The out-patient departments of our nose and throat clinics are much less frequented than formerly.

Vital Statistics.

The report of the Burgomaster of Vienna on the health of this city, dealing with the year of 1919, is a most startling paper. It deals chiefly with the loss of population by the drop of birth-rate and excess of deaths over births. Already its effects are noticeable in the schools. The number of children in the first standard of all public schools amounted in 1910 to 36,000. Last year it was 25,469. This year (1920) it is only 23,000, and it will be less than 13,000 in four years. In 1910, the total sum of children in public schools was 242,386. In 1919 it fell to 195.748, and in four years it will drop, according to the laws of statistics, to 146,000. All this is due to the drop of the birth-rate. Worst still is the outlook as a consequence of the increase of mortality. Before the war the death-rate had come down from 36·2 per 1000 in 1871 to 15·3 per 1000 in 1913. In that year 32,314 persons died in Vienna. In 1918 51,497 persons died, amongst them 6000 succumbed to the grippe epidemic. 1919 showed a little better death-rate, but still 45,000 deaths were reported. A chief reason for the high mortality is the tuberculosis of the ages of 10–15 years. Whilst the death-rate of the infants is fairly stationary, it gradually increased from 22 per 1000 to 27 per 1000 for the ages of 2–5 years, increased further from the ages of 6–10 years, but it has more than doubled amongst the

children of 10–15 years. The underfed children succumb more easily to the infections, and that is the real danger to this city, for in 1918 the excess mortality was 17,000, in 1919 32,000. Lately, also, the infant death-rate has begun to rise rapidly; it is now 15 per cent. of all infants under 1 year. Therefore, all endeavours have been made to obtain help—i.e., food and fuel—for the underfed children, and the noble gifts of foodstuffs distributed by the Society of Friends have been, and still are, a marked feature of help. Furthermore, the American Public Feeding Society of Vienna secures for all underfed children one meal daily, equivalent in its food value to one litre of standard cow's milk.

The Export of Children.

As soon as it was recognised that chronic starvation menaced the real backbone of the population—our children—efforts were made to get the neutral countries to invite large numbers of children for a few months of recuperation. Switzerland took the challenge up, Holland and the Scandinavian countries followed, and even Italy, the former enemy, at once invited—very generously and on a large scale—our children. At present about 30,000 children are constantly absent from Vienna; they accumulate strength and restore their shattered or half-starved anæmic bodies in the mild climate of Northern Italy, or in breezy Holland, or in the mountains of Switzerland. They stay there mostly three months, and then others take their turn. The Socialistic party of Italy, which is organising these transports with real magnanimity, is acting in a statesman-like way, which will bear good fruit in the future. The necessity of this movement is made manifest by a few figures. The American Feeding Society undertook a general examination of all children in the Vienna schools in December, 1919, and January, 1920. Of the 186,617 persons dealt with 96,789 were classified very badly underfed (Form 3), 63,402 badly underfed (Form 2), 19,694 underfed (Form 1); only 6732 were classified as being in good condition (less than 3 per cent. of the total). This disastrous condition is a real menace in case of an epidemic breaking out. No food, no fuel, no resistance—that is our present condition.

Jan. 23rd.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

The Ministry of Social Hygiene.

THE new Ministry of M. Millerand, in the course of reorganisation, has abolished the various Under Secretariats of State which had existed under the Ministry of War during the hostilities, and in particular has freed that of the Service de Santé, which reverts to its position in 1914 of the seventeenth department of the Ministry. Henceforward it will be under the control of the Medical Inspector-General, General Toubert. It was thought that this opportunity would be taken to establish the Ministry of Public Health, the formation of which has been so long discussed. But M. Millerand has preferred to create a Ministry of Social Hygiene, a new organisation with limits still ill-defined, at the head of which has been placed M. Breton, a non-medical deputy. However, M. Breton has shown much interest in science, and during the war was head of the Department of Inventions concerned with national defence. It was from this department that the French tanks emerged. The nucleus of origin of the new Ministry is constituted by the now abolished Department of Public Assistance and Hygiene, at the Ministry of the Interior. The scope of M. Breton's work is not yet known, nor if the Corps Médical will be to some extent under his jurisdiction. His first act has been to create a permanent commission to centralise efforts against depopulation. It is now eight years since a similar commission was established by the Minister of Finance; it has met on one occasion only.

Influenza.

Influenza has made rapid progress in Paris during the last week, but, though it is becoming widespread, it is certainly less serious than last year, and fatal pulmonary complications are comparatively rare. Encephalitis lethargica does not appear to be increasing, but there is much diphtheria about Paris at the moment.

The Employment of Red Cross Nurses in Infant Welfare Work.

The continued and progressive decrease in the French birth-rate provokes the appearance of numerous projects and reforms, of which the majority are not new. One suggestion is that bounty money should be given for every child after the fourth—a measure which would be a heavy charge on the national budget, and which would not necessarily be efficacious. A more practical method seeks to develop the child welfare movement. Indeed, the bounty would go mainly to poor families among which, through ignorance of the way to bring up children, the infant mortality is very high. Thus the money would often be spent with no ultimate benefit to the State. Statistics show that in the working classes the infant mortality is 60 to 70 per cent., and this figure has hardly varied during the last 30 years. Among the better classes, where children are well cared for, the mortality is between 6 and 10 per cent. It is only recently that infant welfare centres, clinics, and "gouttes de laits" have begun to develop, inspired by Budin and his pupils, by Variot, and others. The effects are only slowly and partially becoming apparent as yet. A new impulse must now be given to the movement, and the best method of providing this seems to be the organisation of help in their own homes to all lying-in women throughout the country. Such an organisation would enable the visitor to give the mother useful advice on bringing up her child, and would show her how to get official assistance at need in the form of milk, drugs, clothing, or even money. To provide the necessary personnel for this colossal undertaking M. Pecker, in the Department of Seine et Oise, has called on the Red Cross nurses, who are now unemployed. Lectures have sufficed to teach them the special technical knowledge; these are necessary, as most of the nurses have been accustomed to deal only with war wounds. M. Pecker is so well satisfied with the results obtained that he has asked the Union des Sociétés Françaises de la Croix-Rouge to adopt the same plan for the rest of France. The President, Dr. Bouloumie, has consented, and it is probable that this big scheme will be carried out.

Feb. 2nd.

ANTHRAX AND SHAVING BRUSHES.

A CASE of anthrax occurred recently in Norwich in which it appeared likely that the infection was derived from a shaving brush. The victim was a railway clerk, aged 31, who was admitted to the isolation hospital on Jan. 6th with a swelling of the left jaw. He said that a few days previously he had cut his face while shaving, and it felt as if he had cut off a pimple. The next day he felt as if a thorn was pricking him, and the place began to swell. He had been using a new shaving brush, which was purchased in Norwich. He did not come in contact with animals in his work. He died on Jan. 14th and at the inquest Dr. W. L. M. Goldie, resident medical officer at the isolation hospital, stated that the patient when admitted had a swelling on the left jaw, which he removed. A culture taken from this swelling showed the presence of anthrax bacilli, but serum treatment was without effect. Post mortem a large hæmorrhage was found in the stomach and the kidneys were also affected. In Dr. Goldie's opinion the cause of death was anthrax, but he was unable to say how it was contracted. The shaving brush, having been unsuccessfully examined for anthrax bacilli, was handed over to Dr. Cooper Pattin, the medical officer of health, and by him forwarded to the Ministry of Health. The brush was one of a consignment marked "2594. Made in Japan." The following report was received from the Ministry of Health: "Some brushes of the same pattern as that used by the deceased—viz., 2594—were examined in our laboratories, and numerous anthrax colonies were found in the culture." The evidence connecting the man's death with an infected shaving brush is thus very suggestive.

Public Health.

ANNUAL REPORTS OF MEDICAL OFFICERS OF HEALTH.

TWO REPORTS DEALING WITH TUBERCULOSIS.

County of Derby.

IN his annual report for 1918 Dr. Sidney Barwise makes some interesting comments on the tuberculosis problem. He expresses the view that the only means of "stamping out" the disease would be the discovery of some form of vaccination against the malady. In the present state of our knowledge he advocates that attention should be directed to the child. It is well known that, in the case of communities in which tuberculosis has not previously existed, its ravages are very great when once it is introduced. It is probable, indeed, that in this country we survive only because the bulk of the population have acquired immunity as a result of slight attacks. The child is born without immunity, and, if exposed to infection during the first year of life, will almost certainly succumb. But under modern conditions it is impossible to avoid the ubiquitous tubercle bacillus, which, sooner or later, will almost inevitably gain access to the system. Early exposure to a strictly limited infection, together with the building up of resistance during the developmental period by making home and school conditions approximate as closely as possible to those of a sanatorium are, in Dr. Barwise's opinion, at present the best means at our disposal for ensuring immunity. Infantile infection mainly occurs through the mucous membrane of the upper respiratory passages or intestinal tract, probably more through the former channel than the latter. There is reason to believe that, massive direct infection apart, most of the cases of tuberculosis in the adult are recrudescences and extensions of these early infections, and would have been avoided if a high degree of immunity had been established and resistance raised to the utmost in childhood. If this be true, the hunt for "early adult" cases is, to some extent, based on an illusion, as the earliest diagnosable case in an adult is already probably many years old. It is obvious from the public health point of view that, the earlier cases are diagnosed, the sooner will the individuals concerned and their families come under the influence of the tuberculosis officer and begin to lead the "sanatorium life." At the present time the Public Health Department in Derbyshire fails to get into touch with the cases while they are in an early and curable stage. As many as 70 per cent. of the cases notified die within 12 weeks of notification.

In reference to the "after-care" of the consumptive, Dr. Barwise emphasises the fact that the term "farm colony" is often misunderstood. It does not, of course, imply that the tuberculous man or woman is to be engaged on farm work in the ordinary sense. Such work is skilled and heavy in character and necessitates a seven days' week. It could not be undertaken by the average phthisical person. By a "farm colony" is meant the housing of consumptives in detached houses, where forestry, nursery gardening, horticulture, fowl-keeping, woodwork, and similar handicrafts can be carried on, the products of their labour being sold through one organisation. A better term to employ would be "craft colony." In this connexion it will be necessary to come to an agreement with the labour organisations that certain industries shall be ear-marked as suitable for the consumptive, so that there shall be a good market for the products of his subsidised labour, and that he shall not be in direct competition with healthy labour. We must consider where the process of segregating consumptives is to end, and in order to get a true perspective of the problem we must remember that the great bulk of the population of these islands is suffering or has suffered from tuberculosis. The development of "craft colonies" will, it is hoped, meet the case of those patients whose occupations are obviously unsuitable or who are without occupation. It is a fact that no individual who has suffered from established pulmonary tuberculosis ever regains his full former working capacity. The extent of the loss sustained depends, other things being equal, on the strenuousness of the occupation, and on the physical effort involved. It may be observed that occupations requiring for their successful accomplishment prolonged exertion, even if completely "outdoor," are quite unsuitable for the post-tuberculous. It would be well if this loss of working capacity, and therefore of earning power, were generally recognised. A post-tuberculous subject may be capable of efficient and of brilliant and original work, especially when such work is of a skilled and technical nature; but in heavy manual work the consumptive cannot with impunity attempt to compete with the healthy. It is only just, therefore, that tuberculous subjects should be prepared to accept a lower wage, working shorter hours than the healthy; otherwise, in the coming days of high wages and corresponding high efficiency, it will be impossible to find them employment. This point has a definite bearing on the matter of the "minimum wage," now probably a permanent feature of industry, and Dr. Barwise commends the question to the sympathetic attention of the various trade-unions and other industrial organisations. He suggests that tuberculosis officers recognised by the Ministry of Health should certify the percentage efficiency of the consumptive, and that trade-unions should honour the certificates of these officers.

County Borough of Halifax.

The difficult problem of the after-care of the sanatorium patient is considered by Dr. James T. Neech in his annual report for the year 1918. While the term "after-care" savours, perhaps, too much of a belated policy, and resembles too closely the act of locking the stable door after the steed has been stolen, it would appear that, in the present state of our knowledge, some such procedure is absolutely necessary, and must occupy an important position in the campaign against tuberculosis. But the care of those who are strongly predisposed to the disease is probably an even more important problem. If "pre-care committees" were established for the purpose of securing good housing conditions and sanitary surroundings, healthy workshops, and suitable work for these unfortunate persons with a view to preventing the development of tuberculosis, much advantage to the public health would be likely to accrue. It is obvious that we shall never stamp out the malady by attempting to cure it, and the greatest hope for the future lies in the direction of prevention. In this connexion it is possible that we have, in the past, concentrated too much attention on the part played by the tubercle bacillus without having paid sufficient regard to the effect produced by other bacteria associated therewith in the gradual extension and progress of the disease. Mixed infections probably influence the course of many of the infectious diseases. In the case of diphtheria, for example, it has been noted that when mixed infections are present the administration of antitoxin is not followed by the marked benefit that generally results from its use. It has been shown by certain observers that the tubercle bacillus grows much more luxuriantly on nutrient media impregnated with the toxins of certain of the bacteria isolated from mixed infections. It is also well known that patients who suffer from broncho-pneumonia following measles or whooping-cough are often subsequently attacked by phthisis. The primary infections in these cases probably prepare the soil for the reception of the tubercle bacillus. Again, why does the tubercle bacillus remain more or less dormant and inactive within the body at times for long periods? May not this be due to absence of the necessary symbiotic influence during the phase of inactivity?

Whatever immunity may be, it seems to differ in its nature in different diseases, because in certain cases one attack confers almost absolute immunity against further attacks of the same disease, as in small-pox, for example; while in others one attack appears to predispose to further attacks of a similar nature. It is possible that immunity in phthisis consists to a great extent of immunity against the various bacteria usually associated with mixed infections. The tuberculous process is frequently a very chronic one, having perhaps lasted

for years before the patient is brought under treatment at the sanatorium, yet a certain proportion of patients after admission show early signs of improvement, and it is such cases which usually obtain the greatest benefit from sanatorium treatment. It is difficult to believe that a few days' or even a few weeks' residence in a sanatorium can produce any marked modification in the tuberculous process per se. A chronic disease, unless it is maintained and intensified by a constantly recurring cause, which is more or less removable, would not be so modified. If the purely tuberculous process were so affected it appears probable that sanatorium treatment would be more successful than it has so far proved to be. In Dr. Neech's opinion, sanatorium treatment modifies the effects of the mixed or secondary infections rather than the tuberculous process itself. If this hypothesis be true it is worthy of careful consideration in connexion with the problem of prevention. The inhabitants of great industrial centres live, so to speak, on paved surfaces. This is necessary to prevent pollution of the soil and to facilitate cleansing, but such surfaces are readily dried, and any organic matter or any infective material cast thereon is readily converted into dust which is distributed by air-currents. The house affords a receptacle for the collection and retention of the infective agent or agents. The ventilation is often defective, and that, combined with the injurious influence of overheated rooms, tends to depress vitality. Where houses are crowded together in industrial areas there is a concentration of infection and polluted environment, with the result that the disease in such districts is more prevalent and destructive of life.

In Dr. Neech's opinion it is evident that the ultimate aim of after-care must be the removal of all known consumptives from populous centres into suitable country districts. Public opinion may not yet be ripe for compulsion in this matter, but a compulsory measure in some form will doubtless be necessary to place towns, in military parlance, "out of bounds to the consumptive." The suggested colony scheme with suitable factories, workshops, schools, &c., if properly organised, will undoubtedly serve a most useful purpose. But colonies alone will not suffice. Consumptive patients, as we all know, are among the most difficult to manage and many of them would object to go into colonies. If open-air treatment is to be more effectual in the future than it has been in the past, the method must be applied as a preventive agent, and those persons who are predisposed to the disease—namely, the families of the consumptives—must be given open-air treatment before and not after they have developed the disease. It will not be sufficient therefore, to transfer the consumptive only from congested areas; those who are markedly susceptible to the disease must also be removed into open-air surroundings. With this end in view Dr. Neech recommended his committee some two years ago[1] to erect a number of bungalows with open-air bedrooms for the accommodation of consumptive families, and he commends such a scheme to careful consideration, believing that it will command the approval of many who may object to the colony.

URBAN VITAL STATISTICS.

(Week ended Jan. 31st, 1920.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had declined from 16·2 to 15·3 in the four preceding weeks, rose to 15·9 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 16·8, or 1·7 per 1000 above that recorded in the previous week, while among the remaining towns the rates ranged from 4·9 in Oxford, 5·7 in Reading, and 7·0 in Willesden, to 21·7 in Merthyr Tydfil, 22·4 in Wolverhampton, and 23·0 in Liverpool and in Oldham. The principal epidemic diseases caused 400 deaths, which corresponded to an annual rate of 1·3 per 1000, and included 109 from measles, 100 from diphtheria, 96 from whooping-cough, 65 from infantile diarrhœa, 25 from scarlet fever, and 5 from enteric fever. Measles caused a death-rate of 1·8 in Leeds, 2·0 in Barrow-in-Furness and in Carlisle, 2·3 in Grimsby, and 4·4 in Barnsley; and whooping-cough of 1·4 in Leyton and in Norwich, and 1·6 in Birkenhead. The 66 deaths from influenza were 19 less than the number in the previous week, and included 15 in London, 7 in Liverpool, and 6 each in Birmingham and Leeds. There were 2550 cases of scarlet fever and 2008 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2614 and 1994 respectively at the end of the previous week. The causes of 43 deaths in the 96 towns were uncertified, of which 13 were registered in Birmingham, 5 in Liverpool, and 3 each in Stoke-on-Trent and Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at 2,400,000 persons, the annual rate of mortality, which had been 16·6, 16·1, and 15·3 in the three preceding weeks, rose to 15·9 per 1000. The 340 deaths in Glasgow corresponded to an annual rate of 15·9 per 1000, and included 3 from diphtheria, 2 from infantile diarrhœa, and 1 each from measles and scarlet fever. The 102 deaths in Edinburgh were equal to a rate of 15·6 per 1000, and included 2 each from measles and diphtheria.

Irish Towns.—Jan. 24th.—The 156 deaths in Dublin corresponded to an annual rate of 19·6, or 4·6 per 1000 above that recorded in the previous week, and included 2 from whooping-cough and 1 from diphtheria. The 141 deaths in Belfast were equal to a rate of 17·8 per 1000, and included 13 from measles, 2 each from scarlet fever and diphtheria, and 1 from whooping-cough.

Jan. 31st.—The 126 deaths in Dublin corresponded to an annual rate of 15·8, or 3·8 per 1000 below that recorded in the previous week, and included 4 from infantile diarrhœa, and 1 each from enteric fever, scarlet fever, and whooping-cough. The 161 deaths in Belfast were equal to a rate of 20·3 per 1000, and included 11 from measles, 6 from scarlet fever, 2 from enteric fever, and 1 each from whooping-cough and infantile diarrhœa.

[1] THE LANCET, 1918, i., 416.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg. Lieut. D. H. Cameron transferred to permanent list of Surgeon Lieutenants, R.N.

ARMY MEDICAL SERVICE.

Major-Gen. W. T. Swan retires on retired pay.

Lieut.-Col. J. P. J. Murphy is placed on the half-pay list on account of ill-health.

Major A. B. Hinde, retired pay, is granted the rank of Lieutenant-Colonel on ceasing to be re-employed.

Capt. R. M. Dickson relinquishes the acting rank of Lieutenant-Colonel.

To be acting Lieutenant-Colonels: Temp. Capt. (acting Major) G. W. Rea, Major and Bt. Lieut.-Col. B. A. Craig.

ROYAL ARMY MEDICAL CORPS.

Capt. R. O'Kelly relinquishes the acting rank of Lieutenant-Colonel.

Temp. Capt. J. F. O'Malley to be temporary Major.

The undermentioned relinquish the acting rank of Major: Capts. S. J. A. H. Walshe, A. G. Wells, E. G. S. Cane, E. A. Strachan, W. J. Tobin; Temp. Capts. A. S. K. Anderson, W. J. Macdonald, B. H. Woodyatt, A. L. Robinson, H. B. Dummere, W. C. Sharpe.

To be acting Major: Capt. M. Morris.

Capt. E. G. H. Cowen retires, receiving a gratuity.

Lieut. (temp. Capt.) H. J. Bensted to be Captain.

T. W. J. Childs to be temporary Captain.

Officers relinquishing their services:—Temp. Lieut.-Col. A. C. Suffern (and retains the rank of Lieutenant-Colonel). Temp. Major (acting Lieut.-Col.) W. de M. Hill is granted the rank of Lieutenant-Colonel. Temporary Majors retaining the rank of Major: W. P. Yetts, N. Roberts. Temporary Captains granted the rank of Major: J. W. C. Gunn, W. J. Macdonald. Temp. Capt. J. Howells. Temporary Captains retaining the rank of Captain: G. M. Cameron, E. H. Cameron, J. R. Griffith, J. Geoghegan, B. M. Collard, T. E. George, S. B. Radley, A. C. Lambert, R. O. Whyte, A. E. Moore, T. V. Somerville (acting Major), G. J. C. Ferrier, R. H. Stoddard, G. A. Lamont, F. H. Cooke, J. F. Hoare, A. H. Húycke, F. T. D. Clindening, E. F. Wills, E. J. Peill, A. R. Leggatte, J. P. McVey, C. Hunter, F. D. Parbury, A. L. Martyn, J. D. Gimlette, E. Forbes, W. C. Morton, E. F. Buckler, A. H. Wilson, E. A. Aylward, D. K. MacDougall, A. G. Alexander, J. C. Anderson, G. N. Braham, C. Loddiges, A. F. Miller, R. Crawford, E. R. C. Cooke, J. Gray, R. L. Haines, K. D. Atteridge, D. I. Dakeyne, H. C. Martin, D. Rees, R. C. Walker, D. S. Clarke, H. W. Perkins. Temp. Lieut. F. G. McGuinness (retains the rank of Lieutenant). Temp. Hon. Lieut. C. H. Evans (retains the honorary rank of Lieutenant).

SPECIAL RESERVE OF OFFICERS.

Capt. H. W. Hills relinquishes the acting rank of Major.

TERRITORIAL FORCE.

Capt. F. Roberts is restored to the establishment.

Lieut. P. W. G. Sargent to be Captain.

3rd Southern General Hospital: Major L. M. Guilding is restored to the establishment.

1st London Sanitary Company: Capt. A. G. Harrington is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—Flight Lieut. (acting Squadron Leader) J. J. C. Hamilton to be acting Wing Commander whilst employed as Wing Commander.

Flight Lieut. H. Gardiner-Hill to be acting Squadron Leader whilst employed as Squadron Leader.

The undermentioned are transferred to the unemployed list: Capt. J. H. M. Sandison; Lieuts. A. G. Hewer and J. B. Dunlop.

NITROUS OXIDE GAS FOR MILITARY HOSPITALS.

An Army Council Instruction states that supplies of nitrous oxide gas for military hospitals in the Eastern Command (except the counties of Middlesex, Kent, Surrey, and Sussex and Woolwich District), Irish Command, Northern Command, Scottish Command, Southern Command (except the counties of Buckingham, Berks, Dorset, Wilts, and Hants), and Western Command, will be obtained from the Condensed Gas Company, 59–63, Grosvenor-street, Manchester. Supplies of nitrous oxide gas for all other military hospitals will be issued from Army Medical Store, Woolwich.

DEATHS IN THE SERVICES.

Lieutenant-Colonel Denis Francis Keegan, I.M.S., whose death at the age of 80 was recently announced, qualified in 1861 with the Membership of the Royal College of Surgeons of England and graduated M.B. at the University of Dublin in 1862, proceeding to the M.D. degree three years later. In 1866 he joined the Indian Medical Service, and acted as residency surgeon, Indore, in 1877. He saw active service in the Afghan War of 1879–80 with Lord Roberts, and was present at the battle of Kandahar, obtaining the medal with clasp and the bronze star. In 1881 he again became residency surgeon at Indore, and was appointed civil medical officer for Central India. It was during this period of his life that, following Biglow of America, he practised and advocated litholapaxy for stone in the bladder and established that method in a firm position. He also did much original work in plastic surgery of the face, developing the operation known as Keegan's rhinoplast. The preliminary result of his work in this direction was published in Vol. I. of THE LANCET, 1891, p. 419. This was afterwards expanded, and with many additions was published in book form in 1900 under the title of "Rhinoplastic Operations, with a Description of Recent Improvements in the Indian Method." For his services to surgery the Royal College of Surgeons of England conferred upon him in 1891 an honorary Fellowship. Colonel Keegan, who passed the later years of his life in Ireland, retired from the Indian Medical Service in 1894.

THE HONOURS LIST.

The following awards to medical men for valuable services rendered in or in connexion with military hospitals, territorial hospitals, war hospitals, auxiliary and civil hospitals, command depôts, convalescent camps, or on other duties of a similar nature in the United Kingdom in connexion with the army during the war, are announced:—

K.B.E.—Mr. J. F. Colyer.

C.B.E.—Dr. G. Blacker, Dr. C. Bolton, Dr. C. H. Bond, Dr. J. W. Carr, Dr. Helen Chambers, Dr. D. Drummond, Mr. E. P. Furber, Dr. Florence B. Lambert, Dr. H. Lett, Dr. T. Lewis, Dr. T. D. Lister, Dr. C. R. C. Lyster, Mr. L. H. McGavin, Dr. H. J. Paterson, Dr. J. Sinclair, Sir T. R. H. Smith, Bart., Dr. J. Taylor, Dr. R. A. Young.

O.B.E.—Lt.-Col. W. G. P. Alpin, Dr. W. D. Anderson, Mr. T. Baker, Dr. T. W. N. Barlow, Dr. J. H. Barnard, Dr. J. S. Boden, Mr. J. G. Boon, Dr. Winifred F. Buckley, Dr. W. F. R. Burgess, Mr. A. C. Burrows, Dr. C. T. T. Comber, Dr. R. Dagger, Dr. R. G. Davidson, Dr. W. H. Dickinson, Dr. L. G. Dillon, Dr. G. C. Garratt, Dr. H. W. Gell, Mr. T. P. Gostling, Mr. E. C. Greenwood, Mr. J. Z. Hanafy, Dr. A. Hawley, Dr. K. R. Hay, Mr. W. Hern, Dr. H. T. Herring, Dr. R. J. B. Howard, Dr. R. Humphreys, Mr. W. W. James, Dr. W. H. Jewell, Dr. H. J. Johnson, Mr. R. N. Jones, Mr. J. E. Kilvert, Mr. P. C. W. Laws, Mr. K. A. Lees, Dr. R. M. Hutchinson-Low, Dr. H. M. McCrea, Dr. N. McDonald, Dr. W. F. McEwen, Dr. Ethel M. Magill, Dr. C. J. L. Mansel, Maj. A. E. Morison, Dr. E. Moss, Dr. R. A. Murray, Mr. G. E. Newby, Mr. W. J. C. Nourse, Mr. J. I. Palmer, Mr. J. L. Payne, Dr. G. J. Peacocke, Dr. J. P. Philip, Dr. E. T. Pinhey, Dr. J. F. Porter, Mr. T. G. Prosser, Dr. J. A. Reed, Dr. P. J. Rendall, Dr. R. A. Rowlands, Dr. H. Sainsbury, Mr. O. B. Shelswell, Dr. Amy Sheppard, Dr. G. K. Smiley, Mr. J. A. Southern, Mr. G. S. Stansfield, Dr. R. de S. Stawell, Dr. H. W. M. Strover, Dr. E. G. Thomas, Dr. R. Turner, Dr. W. Turner, M.V.O., Mr. J. O. D. Wade, Mr. A. H. Warde, Dr. J. A. Wilson.

M.B.E.—Dr. T. C. Askin, Mr. R. T. Bailey, Dr. F. W. H. Bigley, Dr. W. T. Blackledge, Maj. J. F. Blood, Dr. E. M. Brockbank, Mr. T. W. Chaff, Dr. P. M. Chapman, Dr. A. C. Clarke, Dr. J. Craig, Dr. J. B. Cruickshank, Maj. G. H. Darwin, Mr. J. H. Fardon, Dr. C. H. Ferguson, Lieut.-Col. M. Gamble, Dr. C. F. Hadfield, Dr. J. Stirling-Hamilton, Capt. E. W. Hedley, Dr. G. E. Helme, Dr. J. B. Hughes, Mr. G. A. Hutchinson, Dr. Catherine M. Ironside, Dr. T. H. Jamieson, Dr. W. J. Lindsay, Dr. W. McClelland, Mr. G. MacGill, Dr. Mary C. Mackie, Mr. J. C. MacWatters, Dr. F. W. Melvin, Dr. W. S. Moore, Dr. J. G. Moyles, Mr. M. M. Murphy, Dr. H. T. Nixon, Dr. J. Noble, Dr. S. J. Palmer, Dr. W. H. Prentice, Mr. J. Rust, Dr. J. W. Stenhouse, Dr. J. S. B. Stopford, Prof. W. T. Thomas, Dr. T. H. Sanderson-Wells, Dr. H. B. Woodcock, Mr. F. W. Wilson, Dr. R. Wyse.

The Military Cross has been awarded to Temp. Capt. W. J. Maloney, R.A.M.C., for gallant and distinguished services in the field.

The following awards in recognition of valuable services rendered whilst prisoners of war or interned are announced:—

O.B.E.—Capt. T. W. Leighton, R.A.M.C. (T.F.); Maj. W. Mitchell, R.A.M.C.; Maj. F. S. Park, C.A.M.C.

M.B.E.—Asst. Surgs. E. B. Holt and H. A. T. Wells, I.M.D.

BROUGHT TO NOTICE.

The following have been brought to notice for gallant and distinguished services rendered in the field:—

Temp. Capt. I. C. Maclean, D.S.O., M.C., R.A.M.C. (died); Maj. F. S. Park, C.A.M.C.

Obituary.

HENRY LEWIS CLARE, M.D., B.CH. DUB., D.P.H. R.C.P.S. IREL.,

SURGEON-GENERAL AND CHIEF MEDICAL OFFICER OF HEALTH AND MEMBER OF THE LEGISLATIVE COUNCIL, TRINIDAD AND TOBAGO.

Dr. Henry Lewis Clare, who died on Jan. 24th at Bournemouth a few days before his sixty-fourth birthday, was a well-known officer of the West Indies Medical Service, and although he did not always see eye to eye with his authorities, he did useful work in the interests of public health.

Born in Dublin on Jan. 29th, 1858, he was educated at the Rathmines School and at Trinity College, graduating M.B., B.Ch. in the University in 1880. In the following year he was appointed junior resident medical officer of the public hospital at Kingston, Jamaica, and in the subsequent 14 years held appointments as medical officer for various districts in the Jamaica Medical Service. In 1896, the year in which he was President of the Jamaica branch of the British Medical Association, he was appointed district medical officer for Kingston and member of the Central Board of Health. After holding an appointment as acting superintendent medical officer for a year, in 1907 he became surgeon-general and chief medical officer of health for Trinidad and Tobago. While in this office he was involved in a conflict with the authorities. In 1910 a patient was admitted into the Colonial Hospital at Port of Spain and died within two days from bubonic plague. It was then alleged that the surgeon-general, who was also consulting surgeon to the hospital, though informed of the character of the case, had neglected to visit the patient, and did not declare the case to be one of plague until three days after death had occurred. A Commission was appointed by the Governor of the colony to inquire into this matter and other circumstances connected with the conduct of Dr. Clare's medical administration of the colony. This Commission sat for 27 days, and produced a report of 860 pages dealing in a most exhaustive manner with the whole question, but without finding that any of the serious allegations against the medical administration and personal character of Dr. Clare had been borne out. Certain failings in administrative capacity were, indeed, admitted by the chairman of the Commission, Mr. Justice A. D. Russell, but he found no proof of lack of honour or integrity, and congratulated the surgeon-general on having come so well out of an ordeal which wore many of the features of a persecution.

Dr. Clare acted as delegate from Trinidad to the Central Quarantine Authority at Barbadoes from 1908 to 1912, and was President of the first West Indies Inter-Colonial Conference on Tuberculosis, which was held at Port of Spain in March, 1913.

Correspondence.

"Audi alteram partem."

ŒDEMA AS A SYMPTOM IN SO-CALLED FOOD-DEFICIENCY DISEASES.

To the Editor of THE LANCET.

SIR,—Your issue of Jan. 31st contains an article with this title, from which it would appear that the author, Dr. A. Douglas Bigland, is not aware of the prevalence of "hunger œdema" in English Poor-law and insane institutions during the hard times in the winter of 1917–18. There must have been many cases and many deaths. These are firmly associated in my mind with deficiency of fat-soluble A; the calories were sufficient to sustain life, but the food had to be presented in the form of well-cooked soups, stews, or puddings, while fresh milk was in great deficiency. The cases were relieved here when the spring vegetables came into season, and definitely abolished later in the year by the fortunate purchase of 50 gallons of cod-liver oil, then almost unprocurable, and later on by the release of a special cheese ration by the Central Food Control. The symptoms bore no resemblance to those of pellagra, of which I have seen two cases, or of scurvy, which latter disease used to be quite common in English asylums 25 years ago, before the necessity for a free supply of uncooked green vegetables was recognised, even although water-soluble C was then unknown. Beri-beri signs never occurred, but bread still contains a fair amount of water-soluble B.

Dr. Bigland hardly lays stress on either the mental dullness, which was an early sign, or the constant occurrence of the "scarlatinal or morbiliform rash." Really the spots are exactly like those of enteric on their first day, but appear mainly on the shins and dorsum of feet instead of the abdomen. The extreme loss of fat and moderate œdema with muscular asthenia and subnormal temperature were also typical. Naturally chronic dysenterics suffered badly, but not so much as the hard-working patients—e.g., stokers. Post mortem, the fat loculi were everywhere full of mucin-laden serum, and "œdema of the auriculo-ventricular junction" was universal. The adrenals were large and looked healthy, but a few cases of hæmorrhagic adrenalitis appeared.

At that time laboratory work was impossible owing to the absence of staff on war service, but the train of events seems fairly clear. Whatever the chemistry of vitamines and their interaction with the hormones may be, the adrenalin outflow was a protective sympathetico-tonus calculated to produce hyperglycæmia. Owing to starvation the effort was futile, consequently the depressive emotion as a muscle-sensory motor reaction scarcely occurred, and melancholics became less depressed. That cortical lipolysis was acute is evidenced by the mental dullness, and especially by the persistent residual dementia in many cases after physical recovery. There is considerable evidence that undue calcium katabolism and insufficient calcium intake are both susceptible to the influence of fat-soluble A, but it is not necessary to deal with these points at present.

I am, Sir, yours faithfully,

Cheddleton, Feb. 2nd, 1920. W. F. MENZIES.

THE INFECTIVITY OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—I should like to reply to two points raised by Dr. H. Batty Shaw in his lecture on Pulmonary and Other Forms of Tuberculosis in your issue of Jan. 24th.

The failure of segregation.—It is true that sanatoriums and dispensaries are disappointing in the treatment of individual patients, but when Dr. Shaw goes on to infer that segregation and treatment of tuberculosis as an infective disease has failed, I cannot see any grounds for the inference. Tuberculosis is, indeed, notifiable, but no serious attempt has yet been made to treat it as an infective disease and isolate infective cases. Some may stay for a period in hospitals or sanatoriums, but for a short period only, not long enough for useful isolation; while, on the other hand, general and special hospitals, even Brompton itself, as Dr. Shaw points out, refuse more and more to accommodate advanced and dangerous patients, who are therefore compelled to live "with their own," and with disastrous results to their own (at least in many instances that have come to my notice). The meat of a cow with tuberculosis is not allowed to be sold, but the milk is still sold; and nothing whatever is done to deal with the far more dangerous infective humans. It is almost as if a dangerous plague having attacked a certain community, the public health authorities of that community offered free medicines to diseased patients and forbade aeroplanes to fly over the infected area, but took no other precautions, and then complained that all measures of segregation had failed.

The rôle of secondary infections.—It is also quite true that those subject to bronchial and other respiratory catarrhs are more likely to develop tuberculosis than others; but it does not follow that the secondary infecting organism is itself the dangerous factor. It may just as well be that the secondary infection lowers the local resistance to the tubercle bacillus and allows it to become more active. The latter hypothesis is the likelier, perhaps, for the disposition to catarrhs is usually lifelong, while the development of clinical tuberculosis occurs later.

We await some further explanation of the many cases of clinical tuberculosis in which tubercle bacilli are not found in the sputum. There are doubtless some purely staphylococcal or pneumococcal infections which simulate tuberculosis and account for a few, but not many, of the cases in this group. Possibly some hitherto unrecognised form of the tubercle bacillus or a spore stage will explain matters; certainly, the elucidation of this problem is most important.

I am, Sir, yours faithfully,

Paignton, Jan. 27th, 1920. E. WARD.

To the Editor of THE LANCET.

SIR,—In Dr. Batty Shaw's address in THE LANCET of Jan. 24th tuberculosis is presented as a non-infectious disease, although the lectuer cites the fact that its periodicity curve resembles that of the acute infectious diseases. The difference appears to be merely one of chronicity and not of infectivity. Infection by the tubercle bacillus is universal amongst man. It is no support of the internal reinfection theory to say that in any particular individual a healed tuberculous lesion in a part may be followed, after a lapse of months or years, by an active lesion in another. If external reinfection takes place in some cases—a concession Dr. Batty Shaw makes—why should it not do so in all? Infections do not spread in a multiplicity of ways, and the better understood pathological processes become the simpler they are found to be. If the contentions in the address are correct, it is a needless and an alarmist policy to advocate sputum flasks, separate bedrooms, separate eating utensils in cases of consumption. The reservations and small inconsistencies that crop up in the course of the address do not add to the strength of the argument.

Dr. Shaw deplores the undoubtedly poor results of sanatorium treatment and the obvious failure of the antituberculosis measures in vogue, but he does not point out the cause of the failure. I wonder how many "homes for the dying" admit advanced tuberculous (consumptive) cases? As for the infirmaries, patients enter and leave these institutions as external circumstances dictate. The ultimate refuge of the consumptive during his last months is, in the vast majority of instances, his own, usually overcrowded, home. A few years pass by, the family scatters, another member develops the disease, but the direct connexion between the first case and the second is lost, and with it a valuable detail. No observable source of massive infection being found, the patient is supposed to have inherited the disease in early childhood or even before!

If the "inhuman and unsocial" procedure of segregation in colonies was thoroughly carried out, the results would improve and tubercle in the span of a generation become as uncommon as leprosy. Surely it is logical to isolate those unfortunate members in our midst who have become a source of danger to their neighbours. It is done in the acute infectious diseases, why not in the chronic? Incidentally some figures which Dr. Shaw gives support my contention—pessimistic though it be—that once tubercle bacilli have appeared in the sputum the stage of cure is past. We have got into the habit of thinking in days and weeks when dealing with disease so that the lapse of years makes us lose the links between cause and effect. Rather let us be cruel to be kind, than sit resignedly with folded arms and gently murmur "Kismet."

I am, Sir, yours faithfully,

Swansea, Jan. 28th, 1920. OSCAR M. HOLDEN, M.D.

THE INCREASE OF CRIMINAL ABORTION.

To the Editor of THE LANCET.

SIR,—Your leading article on criminal abortion raises some interesting and important points. Why should procuring abortion for other than medical reasons be considered a crime so grave that, in the opinion of a well-known judge of the High Court, the "professional abortionist," such as Gardner, ought to be hanged when he has the misfortune to lose a patient? I express it thus because, as we all know, every abortion-monger, "professional" or occasional, does his best, for what that may be worth, to keep his patient alive and well: the last thing he desires is the illness or death of the woman concerned. So distinguished an authority as the late Dr. Mercier wrote: "The procuring of abortion with the consent of the woman wrongs no one. ..... I can discover no sound reason in ethics for the great severity with which the procuring of abortion is punished by law."[1] Is the reason adduced by the learned judge the main reason for this severity? Are not some of the "other reasons" a good deal more important? If the repeated induction of abortion is a heinous crime because for our own safety as a nation we need "plenty of children" "to meet our enemies in the gates" then what about the deliberate and intentional prevention of conception? If the "professional abortionist" ought to be hanged, how about the Doctor of Science who publishes details of procedures calculated to prevent conception? The influence of the latter in lowering the birth-rate is probably a hundred times greater than that of Gardner and Co., who at least practise in the semi-obscurity of back streets, while the publications referred to are sold by thousands, probably tens of thousands, and certainly not by medical publishers to the profession alone.

I suggest, Sir, that the main reason, and the most defensible, for severely punishing "criminal" abortion is to protect the girl or woman from unfair suasion, pressure, or force on the part of lover, husband, or acquaintances. If "criminal" abortion were not severely punishable every girl or woman who had the misfortune to become pregnant contrary to her own, her lover, or husband's desire, would be liable to this very undesirable form of pressure, and I fear there are a good many such persons who would not hesitate to exercise it. That this operation may possibly cause the death of the patient is in itself an insufficient reason for banning it, because death *may* ensue from any "operation of election," if only from the anæsthetic; but the chances are that the risks of artificial abortion would be entirely concealed from the patient.

In his list of offences against the racial principle Dr. Mercier placed "criminal" abortion between infanticide and prevention of conception. "Infanticide, procuring abortion, and preventing conception are manifestly three degrees of the same crime, and I think manifestly diminish in turpitude from the first-mentioned to the last."[2]

[1] Crime and Criminals, p. 197. [2] Ibid., p. 197.

If purposive infanticide is never punished by death, why should accidental woman-slaughter be so severely punished, unless for the protection of woman against force and fraud on the part of her relatives, acquaintances, and advisers.

I am, Sir, yours faithfully,

BERESFORD KINGSFORD.

Upper George-street, W., Feb. 1st, 1920.

VACCINE TREATMENT OF ACUTE ORCHITIS AND CATARRHAL JAUNDICE.

To the Editor of THE LANCET.

SIR,—The following are personal experiences. During the last few years I have been specially unfortunate in my bacterial encounters, and it is in the hope that these may be of benefit to others that I venture to place them on record.

Nine years ago a very severe attack of nasal catarrh was followed by sinusitis. I sought relief in a warmer climate, but was attacked by left hemiplegia (fortunately not complete) in Venice, came straight home, and went to bed for six weeks. In the course of this time an attack of phlebitis developed in the left saphena, and in view of this I had no doubt that the hemiplegia was also of bacterial origin. With this idea I prepared an autogenous vaccine of *M. catarrhalis*, which was easily obtained from the nose, and this not only cured the general condition, but also the sinusitis and nasal catarrh. The hemiplegia disappeared completely.

Two and a half years ago, after five days of a severe attack of erysipelas, I became unconscious, and remained so for four days, when I regained consciousness with complete right hemiplegia and aphasia, being quite unable to articulate. Thanks to the kind care of my good friends, Dr. Percy Kidd and Dr. Porter Smith, I again made a rapid and complete recovery.

At Midsummer, 1918, a very severe attack of hæmaturia, lasting a week and followed by another on Dec. 1st, called for an investigation of the bladder, and was found to be due to a papilloma, which was dealt with by high-frequency current. The first operation gave rise to a good deal of cystitis, which I regarded as a natural consequence. On the second occasion pain began to be felt in the left inguinal canal 36 hours after the operation, and this passed down the cord, accompanied by swelling, first of the epididymis, and then of the testicle, which became greatly enlarged, but not, so far as I can judge, so tender as in gonorrhœal orchitis. After a day or two I noticed that the last few drops of urine were turbid, and taking advantage of this, I made a culture, which contained two organisms, a staphylococcus and a short stout bacillus. Without waiting to differentiate between the two, I made an autogenous vaccine, containing, as nearly as might be, 50 millions of each, as an initial dose. The general reaction after the second and following doses was very marked, a feeling of nausea, faintness, and general illness, lasting about three hours, but the effect upon the local conditions was most striking, since only six or seven doses in all were needed to effect a cure, though there is still a little fluid in the tunica vaginalis.

Two months ago, during a mild attack of nasal catarrh, I had a slight rigor, and a temperature of 99·6° F. on the first and second evenings. I continued to get about until the fifth day, when I noticed that the urine, though dark, remained clear on cooling. I then tested for bile, and, by barium chloride and chloroform, obtained enough pigment to give the reaction. Next day the conjunctivæ became yellow, and on the tenth day the fæces were quite white, and the general surface strongly pigmented. In view of the febrile attack I was led to suspect a bacterial infection, and having had catarrh at the onset, and having by me a dose of 1000 millions of my old autogenous vaccine, I injected it. The general reaction was much as above narrated. The nasal mucus yielded a pure and abundant growth of *M. catarrhalis*, and, to make a long story short, the bile returned to the fæces within four days, though it was five weeks before the urine and conjunctivæ became normal. I had in all six doses of the new vaccine. I

should perhaps add that on neither occasion was any other treatment used after the vaccine was begun, so that in both it may fairly claim the credit.

In view of the attacks which have lately been made upon vaccine methods of treatment the above events are not without their lessons. Personally, it is my fixed rule never to prepare a vaccine for a patient without a reasonable chance of obtaining the peccant organism. For the same reason I always steadily decline to attempt the preparation of a blood vaccine except at the bedside. The sources of error are too many.

I am, Sir, yours faithfully,

E. C. BOUSFIELD, D.P.H. Camb. and Lond.,
Director, Camberwell Research Laboratories; Bacteriologist, Camberwell and Hackney.

ALIMENTARY TOXÆMIA.

To the Editor of THE LANCET.

SIR,—We may well give keen attention to the views suggested by Dr. R. Chetham-Strode and Dr. J. D. Benjafield in their recent communication (THE LANCET, Jan. 10th), for here we obtain a definite line of action based on a really scientific hypothesis, and controlled by tests which, though now somewhat haphazard, are of their nature not outside the possibility of proper control. Granted that the establishment of a lactic-acid fermentation within the large intestine is an essential foundation of health, it is clear that the directions as to diet, massage, autogenous vaccines, and the use of "sour-milk"—to which may well be added the wearing of a suitable abdominal support—offer what may well be a very fruitful field for therapeutic investigation; much must depend on the skill with which these things are made use of in combination or alone. One may hope, therefore, that the authors of the interesting communication in question will find time to collate the facts on which their lactic-fermentation view of health is founded. At the same time the busy practitioner will undoubtedly welcome some form of chemical test, readily applicable to the stools, that will enable him to know when this fermentation has become established, in place of the bacteriological index suggested.

I am, Sir, yours faithfully,

Harley-street, W., Jan. 31st, 1920. E. L. ASH, M.D.

LOCAL EFFECT OF QUININE INJECTION.

To the Editor of THE LANCET.

SIR,—An annotation on the Local Effect of Quinine Injection in THE LANCET of Jan. 31st concludes with the words, "the severe complications which may attend this practice would seem to contra-indicate it save under exceptional conditions."

I venture to think that the opinion thus expressed is misleading. In the actual treatment of malaria in Macedonia during three summers it was found that these severe complications were very exceptional, whereas the conditions necessitating intramuscular injection were, unfortunately, very common.

As one who saw some of Colonel L. S. Dudgeon's experimental results in the fresh state, I fully agree with his statements of the destructive effects of these injections. It is certain that every injection must cause a patch of necrosis in the muscle. I am equally certain, however, that the patient is none the worse. A few days' stiffness and slight local pain comprise all the ill-effects resulting from the injections, symptoms so slight that they should not be allowed to count against the therapeutic gain obtained by the extremely rapid absorption of the drug. This opinion is based on the observation of several hundred cases and on the personal experience of receiving a full course of injections myself, from which I have never felt the slightest ill-effects. Septic complications, and injuries to vessels and nerves, were in almost every case attributable to faulty technique, and were so rare in practice as to be almost negligible.

The consensus of clinical opinion in the Salonica Forces was certainly in favour of the free use of intramuscular injection as a means of obtaining a rapid control of the severe infections which were so common. I believe that for every case of permanent disability from muscle or nerve injury produced by these injections several lives were saved, and in consequence I think that any statement which would tend to restrict the use of this method of treatment in the severer forms of malaria is to be regretted.

I am, Sir, yours faithfully,

Welbeck-street, W., Feb. 3rd, 1920. HAROLD WILTSHIRE.

IS THERE A PARA-SCARLET FEVER?

To the Editor of THE LANCET.

SIR,—At the moment I have no wish to enter into a discussion on what, in some instances, cases of mild scarlet fever may or may not actually prove to be, but there is a statement in Dr. Charles R. Box's letter in your issue of Jan. 31st which puzzles me. In referring to mild scarlet fever cases he says: "One may say at once that none of the milder cases alluded to are German measles; of this I am certain." For very many years the diagnosis between scarlet fever and rubella has interested me more than any other diagnosis. For instance, I had learned that in some cases it was impossible to differentiate, and I had also learned that the rash of rubella, from its start, occasionally imitates the rash of scarlet fever. Dr. Box is certain that a series of cases of supposed mild scarlet fever were none of them rubella, and he would confer a very great benefit were he to indicate the points which should be observed to make the differential diagnosis certain.

I am, Sir, yours faithfully,

FREDERIC THOMSON,
Medical Superintendent.
North-Eastern Hospital, Tottenham, N., Jan. 31st, 1920.

THE DEATH-ROLL OF STREET ACCIDENTS.

To the Editor of THE LANCET.

SIR,—We are so accustomed to reading of fatal street accidents, caused by taxi-cabs, motor, electric and steam vehicles, and bicycles, and the verdict of the coroner's court, "Accidental death—no blame attached to the driver," that in these days, when human life is held so cheaply, it is only when a relative or friend is killed that we seriously consider what can be done to prevent these accidents.

On putting together the statistics of the last (1919) report of the Registrar-General (for the year 1917) we find that in 12 months 1617 persons were killed in England and Wales by these accidents; and many more would be seriously injured. Yet no one attempts to commit suicide by placing him- or her-self in front of a taxi-cab or motor vehicle. In addition to accidents through thoughtlessness and impatience, we have occasional risks through the drivers suffering from petit mal, epilepsy, syncopal attacks, and early general paralysis. When the driver is clearly to blame he is frequently dismissed with a short rebuke, as in a typical instance in the north, where a lady was killed by a motor lorry on a bright afternoon. The driver admitted he was looking behind the lorry at the time, but the case was dismissed, with a rebuke from the coroner, in terms less severe than most of us would have used if our dog had been killed.

Some accidents are unavoidable, but much might be done to prevent a large number of them; and many will agree with me that the time has arrived when Government should be again urged to enforce further regulations with respect to motor traffic.

I am, Sir, yours faithfully,

Jan. 22nd, 1920. R. T. W.

THE LATE MR. J. C. M'LACHLAN.—John Charles M'Lachlan, L.R.C.P. & S. Edin., died on Jan. 18th, at the age of 66. He received his medical education at the University of Edinburgh and School of Medicine at the Royal Colleges, qualifying in 1878. For more than 40 years he was a well-known practitioner at Shelf, Halifax, and actively associated himself with the public life of the district. He was medical officer for Shelf and part of the Northowram union, a certifying factory surgeon, and a member of the old school board. He was an antiquarian and had an extensive knowledge of European cathedrals.

Medical News.

ROYAL COLLEGE OF PHYSICIANS OF LONDON.—An ordinary Comitia was held on Jan. 29th, Sir Norman Moore, the President, occupying the chair. The following were admitted as Members: Dr. J. Beatty, Dr. T. I. Bennett, Dr. R. C. Clarke, Dr. E. L. Collis, Dr. N. H. Fairley, Dr Dorothy C. Hare, Dr. G. Marshall, Dr. S. G. Ross, Dr. K. Simpson, Dr. R. H. Simpson, Dr. A. T. Todd, Dr. Sibyl I. Welsh. Licences to practise physic were granted to 65 candidates who had conformed to the by-laws and regulations and passed the required examinations. In conjunction with the Royal College of Surgeons of England diplomas in public health were granted to 15 candidates. The following were elected councillors: Dr. W. H. R. Rivers, Dr. S. Monckton Copeman, Dr. T. H. Arnold Chaplin, and Dr. John Fawcett, in place of Sir Henry Davey, Dr. W. Essex Wynter, Dr. James Taylor, and Dr. Herbert Spencer, who retire by rotation. A report was received from the Committee appointed to advise on the disposal of the donation of £500, made by Mr. Mitchell through Sir Edward Malins, for the advancement of our knowledge of tuberculosis, and it was resolved that the interest of the sum of £500 should be devoted to providing for a triennial lecture on tuberculosis to be given by a registered medical practitioner appointed by the President and Censors.

ROYAL COLLEGES OF PHYSICIANS OF LONDON AND SURGEONS OF ENGLAND.—At the Final Examination, held from Jan. 13th to 27th, the following candidates were approved in the undermentioned subjects, but are not eligible for diplomas:—

Medicine.—S. E. Amos, St. Thomas's; Dorothy Bellows, Royal Free; Beryl Bolton, St. Mary's; J. P. Bonfield, Queen's Univ., Kingston, and London; T. A. Brown, Oxford and St. Thomas's; F. Christian, Univ. Coll.; Sarah Annie Cooper, Charing Cross; R. D. Cowan, Toronto and Middlesex; J. J. da Gama Machado, St. Bart.'s; S. N. Deboo, Bombay and London; K. H. Docuss, St. Bart.'s; E. E. Elt, Charing Cross; R. S. Fawssett, St. Bart.'s; J. O'F. Fletcher, St. Mary's; Agnes May Frew, Birmingham; E. E. D. Gray, Guy's; S. Grossman, Edinburgh; T. B. Hodgson, Oxford and St. Bart.'s; W. V. Hughes, St. Mary's; J. Kendall, Guy's; A. M. Kirdany, St. Bart.'s; G. V. C. Last, Liverpool; W. A. Low, St. Thomas's; E. Lowe, Birmingham; G. J. W. McMichael, Birmingham and Univ. Coll.; Cecily Margaret Evadne Maude, Royal Free; B. Molloy, Cork and Birmingham; L. Moss, Guy's; W. A. O'Connor, Oxford and Birmingham; F. R. Oliver, Cambridge and St. Bart.'s; H. C. Powell, Charing Cross; R. V. Powell, King's Coll.; R. F. Price, McGill; C. M. Probert, Guy's; J. Proujansky, London; I. M. Rattray, Cambridge and St. George's; T. Reed, Guy's; Esther Rickards, St. Mary's; E. L. Robert, Middlesex; Isabella McDougall Robertson, St. George's; E. T. Saravanamuttu, Madras and Edinburgh; Mary Selena Share-Jones, Liverpool and Manchester; J. A. P. Shaw, Cambridge and St. Thomas's; E. A. Sparks, St. Thomas's; F. D. Spencer, and G. C. Thornton, Birmingham; R. A. Walker, St. Thomas's; Lucy Wills, Royal Free; F. W. Zaglama, Manchester; and P. R. Zinn, New York.

Midwifery.—H. Amin, Guy's; Ivy Constance Beach, St. Mary's; A. Bearblock, Univ. Coll.; W. Beaumont, London; Dorothy Bellows, Royal Free; L. M. Billingham, St. Bart.'s; F. Blake, St. George's; C. H. Bracewell, St. Bart.'s; Hylda Catherine Briscoe and Mary Burfield, St. Mary's; C. L. C. Burns, St. Thomas's; A. Y. Cantin, London; G. W. Cheater, Charing Cross; D. Crawford, Cambridge and St. Bart.'s; F. W. Crook, Guy's; H. A. Crowther, Cambridge and Guy's; E. C. Curwen, Cambridge and St. Thomas's; K. V. Deakin, Manchester; M. A. Distaso, Cardiff and Bristol; A. H. G. Down, Univ. Coll.; T. A. J. Duff, Toronto; R. T. Edwards, London; E. E. Elt, Charing Cross; M. J. Erdberg, Durham; H. J. Ewart, Univ. Coll.; R. W. Fairfax, Charing Cross; R. A. Fanous, Manchester; R. K. Foulkes, King's Coll.; M. Garfield, Univ. Coll.; I. Griffiths, Liverpool; A. B. Hacking, Middlesex; Hilda Treloggen Haggett, Royal Free; C. K. J. Hamilton, Oxford and St. Thomas's; T. Handel, King's Coll.; Eleanor Harse, Royal Free; H. J. H. Hendley, Cambridge and St. Bart.'s; O. P. Hodge, Louisville; Florence Janetta Humphreys, Westminster; A. Y. Ibrahim, St. Thomas's; M. Jayakar, Univ. Coll.; Anna Keilin, Charing Cross; A. M. Khaleel, Middlesex; A. M. Kirdany, Cairo and St. Bart.'s; J. N. Laing, Manchester; F. Lawrence, London; J. H. Le Brasseur, Cambridge and St. Bart.'s; R. T. Lee, Sheffield; R. Lee-Michell, Middlesex; A. Leigh, Manchester; G. M. Lewis, Univ. Coll.; E. Lowe, Birmingham; Kathleen Maria Boyce McArthur, St. Mary's; R. A. McCabe, Middlesex; N. Makar, St. Thomas's; P. H. Marsden, Liverpool; B. Molloy, Cork and Birmingham; E. R. D. Nagel, St. Thomas's; C. W. Narbeth, St. Bart.'s; H. A. Nathan, Charing Cross; E. L. J. Nicole, Westminster; T. L. Ormerod, Oxford and St. Bart.'s; C. L. Pasricha, Cambridge and St. Bart.'s; R. M. Patterson, Guy's; E. F. Peck, Liverpool and St. Bart.'s; H. J. Phillips and J. Posner, Dublin; J. L. Potts, Cambridge and St. Bart's; H. C. Powell, Charing Cross; C. S. C. Prance, St. Bart.'s; Mary Colegrave Prideaux, St. Mary's; W. Remington, Guy's; M. H. Renall, St. Bart.'s; E. L. Robert, Middlesex; O. W. Robert's, King's Coll.; M. Rose, Guy's; E. Savage, St. Bart.'s; Katherine Jane Shaw, Royal Free; R. G. V. Shaw, Sydney and London; E. H. Strange, St. Bart.'s; H. J. V. Sutton, Middlesex; J. G. Tait, Edinburgh; J. McW. Taylor, Western Univ., Ont.; H. E. Thomas, Univ. Coll.; T. W. Turner, Guy's; J. van Rooijen, Amsterdam; A. R. Walker, Cambridge and St. Thomas's; R. P. Wanless, Durham Helena Jane Webster, Westminster; D. C. Williams, London; Lucy Wills, Royal Free; E. F. Wilson, Guy's; H. N. Witham, St. Thomas's; and C. F. Young, London.

Surgery.—W. G. Barnard, London; D. Crawford, Cambridge and St. Bart.'s; D. G. Garnett, Cambridge and St. Thomas's; R. R. Halsall, Manchester; F. Heber, London; W. V. Hughes, St. Mary's; D. Hunter, London; F. V. Jacques, Bristol and London; F. C. Jones and A. W. Kirkham, Manchester; P. T. Liang, Cambridge and St. Thomas's; H. Mackenzie, Queen's Univ., Kingston, and London; Esther Rickards, St. Mary's; C. Suffern, Cambridge and St. Thomas's; J. McW. Taylor, Western Univ., Ont.; M. Tree, London; and J. van Rooijen, Amsterdam.

SOCIETY OF APOTHECARIES OF LONDON.—At examinations held recently the following candidates passed in the subjects indicated:—

Surgery.—G. R. Aspinwall (Sects. I. and II.), Cambridge and Guy's Hosp.; C. G. Bunn (Sects. I. and II.), Charing Cross Hosp.; N. D. Dunscombe (Sect. II.), Cambridge and St. Thomas's Hosp.; G. E. Rae (Sect. I.), Sheffield; and G. K. Reeves (Sects. I. and II.), Guy's Hosp.

Medicine.—J. G. Barrie (Sects. I. and II.), Guy's Hosp.; N. D. Dunscombe (Sect. II.), Cambridge and St. Thomas's Hosp.; A. H. El Rakshi (Sects. I. and II.), University Coll. Hosp.; J. Kendall (Sect. I.), Guy's Hospital; and W. E. Neale (Sect. I.), Bristol.

Forensic Medicine.—A. H. El Rakshi, Univ. Coll. Hosp.; and C. T. Gasking, Liverpool and Sheffield.

Midwifery.—A. H. El Rakshi, Univ. Coll. Hosp.; A. Keilin, Paris and Charing Cross Hosp.; and G. E. Rae, Sheffield.

The Diploma of the Society was granted to the following candidates entitling them to practise medicine, surgery, and midwifery: C. G. Bunn, N. D. Dunscombe, and G. K. Reeves.

Sir Archibald Garrod will deliver the Schorstein Memorial Lecture on Friday, Feb. 20th, at 4 P.M., in the anatomical theatre of the London Hospital Medical College, taking as his subject the Diagnosis of Disease of the Pancreas.

UNIVERSITY COLLEGE HOSPITAL UNITS.—Details of the formation of these units were given in our issue of last week. Every student is to take duty during his first year for two months' clerking and two months' dressing with the medical and surgical units respectively. Thus every student will in due course pass through both units.

UNIVERSITY OF MANCHESTER: CHAIR OF PHYSIOLOGY.—The Council has appointed Mr. A. V. Hill, O.B.E., M.A., F.R.S., to the chair of physiology, vacant through the resignation of Professor W. Stirling. Mr. Hill was a scholar of Trinity College, Cambridge, was third Wrangler in 1907, and was placed in the first class in Part II. of the Natural Science Tripos (Physiology) in 1909. He was George Henry Lewes student, Walsingham, Gedge, and Rolleston prizeman. In 1910 Mr. Hill was elected to a Fellowship at Trinity College, and in 1916 was elected a Fellow of King's College. In 1918 he became a Fellow of the Royal Society. During the war he obtained the rank of Major in the Cambridgeshire Regiment, and was appointed Director of the Anti-aircraft Experimental Section of the Munitions Invention Department. The inventions which he made proved of the greatest value in the scheme of defence against attack from the air. His researches on the physiology of voluntary muscle are recognised as pioneer work of the first importance.

DEATH OF DR. G. F. WELSFORD.—George Frederick Welsford, M.B. Cantab., M.R.C.S. Eng., who died at Tiverton on Jan. 21st, in his sixty-second year, was born in America of English parents, and educated at Clifton and Caius College, Cambridge, graduating B.A. at the University in 1880. After studying at St. Thomas's Hospital, where he was a keen student, he proceeded to the M.B. degree, and in the same year took the M.R.C.S. After qualifying he settled first in practice at Woodstock, but in 1891 he entered into partnership with Mr. C. E. Liesching at Tiverton, where he remained until his recent retirement from practice. On being appointed medical officer to the Tiverton Hospital he immediately took much interest in the institution, and was largely responsible for the building of pay wards and a modern operating theatre as a Diamond Jubilee Memorial to the late Queen Victoria. He was medical representative of the staff on the house committee of the hospital, and his services were in requisition in all questions that arose. He was also medical officer to the Tiverton Workhouse and to the Washfield Poor-law district. Of wide and varied reading, he associated himself readily with matters of interest affecting the public life of the country, and by educational lectures endeavoured to create local interest in health organisation. A quiet and reserved man, Welsford was the kindest and most considerate of friends and an interesting and amusing companion. During a long and trying illness he was attended by his second wife, who had been a trained nurse before her marriage, and much sympathy is felt for both her and her daughter, who had so little enjoyment out of the well-earned rest to which they were looking forward after Dr. Welsford's retirement from active work in June of last year.

Princess Helena Victoria will distribute badges to members of the League of the Roses at the Great Northern Central Hospital, Holloway, on Thursday afternoon, Feb. 12th, at 3 o'clock, and will be received by the Marquis of Northampton.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A pathological meeting will be held to-day, Friday, Feb. 6th, in the Society's rooms, West London Hospital. Specimens will be shown at 8 P.M. by Dr. J. M. Burnford, Lieutenant-Colonel McAdam Eccles, Dr. R. R. Elworthy, Dr. Reginald Morton, Dr. George Pernet, and Dr. H. J. F. Simson.

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next quarterly meeting of this association will take place on Tuesday, Feb. 24th, at 11, Chandos-street, Cavendish-square, W., under the presidency of Dr. Bedford Pierce, at 2.45 P.M. Dr. Robert Hunter Steen, professor of psychological medicine, and physician to out-patients at King's College Hospital, will read a paper entitled "Chronic Hallucinatory Psychosis."

LITERARY INTELLIGENCE.—Messrs. Cassell and Co. announce for early publication a second edition, by Dr. Comyns Berkeley and Mr. Victor Bonney, of "A Text-book of Gynæcological Surgery." The book has been considerably expanded, and new illustrations, from drawings by Dr. Dupuy, have been inserted.—Messrs. J. and A. Churchill announce a new work entitled "A Laboratory Manual of Elementary Colloid Chemistry," by Mr. Emil Hatschek.

ROYAL DEVON AND EXETER HOSPITAL.—The foundation stone of the new extension, the "Victory Wing," of this hospital was formally laid by Sir R. Newman, Bart., M.P., in the presence of a large gathering. The building is to be two storeys high, and will contain 100 new beds, thus enabling the hospital in future to accommodate 300 in-patients. The cost of the scheme is estimated at £35,000, and of this sum £23,000 have been already obtained.

DORSET INSURANCE COMMITTEE.—At the last meeting of the Dorset Insurance Committee it was reported that on Jan. 1st there were 75,603 insured persons. The average cost of each prescription for the half-year ending June last was 9·06*d*. A member having moved that in future the number of panel patients for each medical man should be limited to 1000, a medical member of the Committee remarked "with all respect they were talking about something they knew nothing about." It was reported that the average number of "panels" in Dorset was about 800. Eventually the proposition was defeated.

ROYAL MEDICAL BENEVOLENT FUND.—At the last meeting of the Case Committee held on Tuesday, Jan. 13th, 16 cases were considered and £224 10*s*. voted to 12 of the applicants. The following is a summary of some of the cases relieved:—

Daughter, aged 61, of M.R.C.S. Eng. who practised at Leatherhead and died in 1861. Until recently has been a school matron, and received from £30 to £40 a year. Now unable to obtain a post, owing chiefly to age and to the demobilisation of so many women. Voted £10.—Daughter, aged 47, of F.R.C.S. Irel. who practised in India and died in 1899. Has had a physical breakdown, after 15 years' rescue work in East London. Has a pension of £45, and receives about £4 from dividends, also £12 by teaching when possible. She also lets rooms, by which she earns about £30. Has a house in London, which brings her in £20 a year. Rates and taxes of London house, £26 10*s*.; rent of house in which she is now living, £43. Applicant has to support a friend who lives with her, and the weekly income works out at about 17*s*. to keep two. Voted £10.—Daughter, aged 43, of F.R.C.S. Irel. who practised in India and died in 1899. Sister of the above applicant. Has been doing rescue work for 12 years, but has been obliged to give it up owing to ill-health. She now lets rooms, from which she earns about £18. Receives pension of £45 and £2 from dividends. Rent 5*s*. for a cottage right in the country, and pumps own water and has no gas. Does own washing and attends to lodgers. Voted £10.—Daughter, aged 46, of M.R.C.S. Eng. who practised at Lincoln and died in 1908. Has no income, and is entirely dependent on her mother, who is an annuitant of the Fund. Rent 15*s*. for one room. Voted £12 in 12 instalments.—Daughter, aged 67, of L.R.C.S. Edin. who practised at Liverpool and died in 1893. Applicant lets rooms, from which she receives about £40. Has occasional help from another charity. Suffers from ill-health. Rent and rates, £26 2*s*. Cannot manage owing to the high cost of living. Relieved three times, £31. Voted £18 in 12 instalments.—Daughter, aged 67, of M.D. Edin. who practised in London and died in 1873. Applicant lives with two sisters, and they take in paying guests. Receives £48 from dividends and £30 from sister-in-law and £15 by teaching. Requires help towards paying coal bill. Relieved four times, £45. Voted £15.—Widow, aged 39, of M.R.C.S. Eng. who practised at Swansea and Liverpool and died in 1914. Has no income and is living with mother, whose income is limited. Has one daughter, aged 11, whom the Guild are helping to educate. Suffers from ill-health. Relieved five times, £60. Voted £12 in 12 instalments.—L.R.C.P. & S. Edin., aged 62, widower, who practised at Old Kirkpatrick. Receives £20 from another charity and £50 from his only son. Rent and taxes £28 10*s*. Suffers from ill-health. Relieved 15 times, £180. Voted £12 in 12 instalments.

Subscriptions may be sent to the honorary treasurer, Sir Charters J. Symonds, C.B., F.R.C.S., at 11, Chandos-street, Cavendish-square, London, W. 1.

HOSPITAL CONDITIONS IN THE WESTERN COUNTIES.—A strong appeal has been issued by the Committee of the South Devon and East Cornwall Hospital, Plymouth, for increased financial support. It is estimated that at the close of the year there will be a deficit against the hospital of £7000.—The annual meeting of the subscribers to the Plymouth Eye Infirmary was recently held. The medical report stated that 2106 patients had been treated during the past year and the financial statement showed an unfavourable balance of £400.—The Committee of the Royal United Hospital, Bath, report that the total debt on this institution is £18,000.

NO. 14 GENERAL HOSPITAL, WIMEREUX: A STAFF DINNER.—A dinner of the staff of this hospital was held at the Victory Restaurant, Leicester-square, London, on Feb. 2nd. Sir John Goodwin, Director-General of the Army Medical Service, and formerly commandant of the hospital, presided. The company numbered about 100. General Sir Arthur Sloggett proposed the toast "No. 14 General Hospital," to which General Sir John Goodwin responded. In the course of the evening the following telegram was received from the King in response to a message of loyal greeting:—

I am commanded to express the thanks of the King to the staff of No. 14 General Hospital, Wimereux, for their kind message addressed to His Majesty on the occasion of the dinner, which, under the presidency of General Goodwin, their former and distinguished Commandant, has reunited that noble band of men and women who ministered to the wounded and sick in one of the largest hospitals in France. The King recalls with pleasure his visit in October, 1915, to the Wimereux Hospital and recognises that the same spirit of devotion and comradeship which animated their work in those days has brought them together again this evening. His Majesty congratulates them on this happy reunion.

Some of the company had travelled from the North of Scotland, France, and Belgium in order to be present.

THE LATE DR. G. DUFFUS.—George Duffus, who died at Woking on Jan. 18th, was a native of Cullen, where he received his early education at the Free Church School. He afterwards went to the University of Aberdeen, where he passed a successful studentship, winning the gold medal for materia medica and the Keith gold medal for practical surgery. After graduating M.B., C.M. in 1884 he became assistant superintendent to the County Asylum, Macclesfield, and later superintendent of a private asylum near Liverpool, retiring from professional work about 15 years ago. Dr. Duffus was a benefactor to the poor of his native town, in which he always took the keenest interest.

DEATH OF DR. D. GOYDER.—David Goyder, honorary physician to the Bradford Infirmary, died on Jan. 27th at Bradford in his ninety-first year. The son of a Swedenborgian minister, he was born at Accrington in 1829, and on the family moving to Glasgow was educated as a chemist and obtained the diploma of the British Pharmaceutical Society. For a time he was engaged in his calling at Ipswich, but returned to Glasgow, where he studied medicine at the University and graduated M.D. in 1860. In the same year he became a licentiate of the Royal College of Surgeons of Edinburgh. From 1862 to 1871 he was in partnership at Bradford, afterwards practising as a consultant. One of the founders in 1863 of the Bradford Medico-Chirurgical Society, of which he was an ex-President, having been honorary secretary for 25 years, he took an active part in discussions and investigations into wool-sorters' disease, and on resigning his position as secretary was presented by his colleagues with his portrait in oils. He was President of the Bradford Philosophical Society from 1901 to 1903.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.
Manual of Surgery (Rose and Carless). 10th ed. By A. Carless, C.B.E., M.S. Lond. Pp. xii. + 1562. 30*s*.

BALE, JOHN, SONS, AND DANIELSSON, London.
Nursery Schools: A Practical Handbook. By Margaret McMillan, Dr. W. J. Howarth, and others. Pp. 106. 5*s*.

CASSELL AND CO., London, New York, Toronto, and Melbourne.
Herman's Difficult Labour. 6th ed., revised and enlarged. By C. Oldfield, M.D. Pp. 573. 16*s*.

CHURCHILL, J. AND A., London.
Manual of Obstetrics for the Use of Students and Junior Practitioners. By O. St. John Moses, M.D., Major I.M.S. Pp. 528. 21*s*.
The Principles of Anatomy as Seen in the Hand. By Prof. F. Wood-Jones, D.Sc., M.B. Pp. 325. 15*s*.

CONSTABLE AND CO., London.
The Use of Colloids in Health and Disease. By Alfred B. Searle. With foreword by Sir Malcolm Morris, K.C.V.O. Pp. 120. 8*s*.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
Cunningham's Manual of Practical Anatomy. Revised and edited by Prof. A. Robinson. 7th ed. Vol. I., pp. 451. 12*s*. 6*d*.
Syphilis in Childhood. By L. Findlay, M.D. Pp. 154. 8*s*. 6*d*.
A Manual of War Surgery. By Col. S. Barling, A.M.S., and Major J. T. Morrison, R.A.M.C. (T.). With an introduction by Major-General Sir George H. Makins, P.R.C.S. Pp. 480.
Surgical Operations: A Text-book for Nurses. By E. W. Hey Groves, M.D., F.R.C.S. Pp. 256. 21*s*.

GRIFFIN, CHARLES, AND CO., London.
Elementary Practical Chemistry for Medical and Other Students. By J. E. Myers, D.Sc., and J. B. Firth, M.Sc. 2nd ed. Pp. 194. 4s. 6d.
Medical Handbook for the Use of Practitioners and Students. By Dr. R. S. Aitchison. 5th ed., revised. Pp. 390. 10s. 6d.

HEINEMANN, WILLIAM, London.
Radiography in the Examination of the Liver, Gall Bladder, and Bile Ducts. By R. Knox, M.D. Pp. 64. 7s. 6d.

HODDER AND STOUGHTON, London.
Chemistry in Everyday Life. By E. Hendrick. Pp. 102. 3s. 6d.

KIMPTON, H., London.
Syphilis: A Treatise on Etiology, Pathology, Diagnosis, Prognosis, Prophylaxis, and Treatment. By H. H. Hazen, A.B., M.D. Pp. 647. 36s.
The Medical Aspects of Mustard Gas Poisoning. By A. S. Warthin, M.D., and Carl V. Weller, M.S., M.D. Pp. 268. 42s.

LA RENAISSANCE DU LIVRE, Boulevard S. Michel 78, Paris.
Le Sens de la Vie Humaine. By Dr. E. Osty. Pp. 272. 5 fr.

URBAN AND SCHWARZENBERG, Berlin and Vienna.
Die Therapie der Haut und venerischen Krankheiten. Von Prof. Dr. J. Schäffer. Pp. 485. M.22.
Die Mehlfrüchtekur bei Diabetes Mellitus. Von Prof. W. Falta. Pp. 388. M.50.
Die Geschlechtskälte der Frau. Von Dr. W. Stekel. Pp. 402. M.40.

VOGEL, F. C. W., Leipzig.
Lehrbuch der Physiologie des Menschen. Von N. Zuntz und A. Loewy, in Berlin. Pp. 789. M.38.

WILEY, JOHN, New York. CHAPMAN AND HALL, London.
Chlorination of Water. By J. Race. Pp. 158. 7s.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

DE GLANVILLE, L. R. G., M.R.C.S., L.R.C.P. Lond., has been appointed Honorary Medical Officer to the Newton Abbot (Devon) Hospital.

LOCK, N. F., M.B., B.C. Cantab., F.R.C.S. Eng., L.R.C.P. Lond., Honorary Consulting Surgeon to the Moretonhampstead (Devon) Cottage Hospital.

NICCOL, W., M.B., Ch.B. Glasg., Ophthalmic Surgeon to the Gloucestershire Royal Infirmary and Eye Institution.

WALTERS, H. B., M.R.C.S., L.R.C.P. Lond., Medical Officer for the Knighton District by the Newton Abbot (Devon) Board of Guardians.

WOOD, A. E., L.D.S. R.C.S. Eng., Dental Surgeon to the Dorset Education Committee.

Royal Free Hospital and London (Royal Free Hospital) School of Medicine for Women: WILLIAMSON, G. S., *M.C.*, M.B., Ch.B. Edin., L.R.C.P. & S. Edin., L.R.F.P.S. Glasg., Pathologist and Director of Pathological Studies; SCHOFIELD, MARY, M.R.C.S., L.R.C.P. Lond., Clinical Pathologist and Assistant Director of Pathological Studies.

Certifying Surgeons under the Factory and Workshop Acts: ALLINGHAM, H. R., M.B., B.S. Lond. (Totnes); FLETCHER, I., M.B., C.M. Glasg. (Workington); WHEELER-BENNETT, C. W., M.B., Ch.B. Oxford (Steyning); WOODROOFFE, G. B., M.B., B.C. Camb. (Lostwithiel).

Vacancies.

For further information refer to the advertisement columns.

Argyll and Bute District Asylum, Lochgilphead, Argyllshire.—Asst. M.O. £250.
Ashton-under-Lyne District Infirmary.—Third H.S. £150.
Bedford County Hospital.—H.P. £150.
Belgrave Hospital for Children, Clapham-road, S.W.—Asst. P.
Bethlem Royal Hospital, Lambeth-road, S.E.—Sen. Res. Asst. P. £600.
Birmingham, City Hospital, Little Bromwich.—Asst. M.O. £300.
Bristol, City and County of.—Asst. Tubere. O. £525.
Bristol General Hospital.—Senr. R.M.O. £300.
British Guiana.—Asst. M.O. £400.
Carlisle, Cumberland County Council.—Asst. County M.O. £500.
Carlisle, Cumberland Infirmary.—Res. M.O. £200.
Chartham, near Canterbury, Kent County Mental Hospital.—Jun. Asst. Third M.O. £300.
Chesterfield and North Derbyshire Royal Hospital.—Senior H.S. £300.
Derby, Derbyshire County Council Tuberculosis Committee.—Asst. Res. M.O. £300.
Dorchester, Dorset County Council Education Committee.—School Dentists. £400.
Durham County Council.—Female Asst. Welfare M.O. £500.
East London Hospital for Children and Dispensary for Women, Shadwell, E.—Two Asst. P.'s.
East Suffolk County Education Committee.—Dentist £400.
Falkland Islands.—Dent. S. £500.
Glamorgan County Council.—Ven. Dis. M.O. £750.
Gloucester, Gloucestershire Royal Infirmary and Eye Institution.—H.P and Asst. H.S. £175 and £150 each.
Govan District Asylum, Hawkhead, Cardonald, Glasgow.—Jun. Asst. M.O. £300.
Great Northern Central Hospital, Holloway, London, N.—S. to Out-patients.
Hackney Metropolitan Borough.—M.O. 10s. per hour.
Hammersmith School Treatment Centre.—S.'s and Anæsths. £70. Two Dentists. £55.
Hospital for Sick Children, Great Ormond-street, London, W.C.—P. to Out-patients.
Hull Education Committee.—Sch. Dentist. £350.
Hull Royal Infirmary.—Asst. H.S. £250.
Ilford Urban District Council.—Asst. M.O.H. £650.
Kensington Infirmary, Marloes-road.—Temp. Asst. Res. M.O. £6 6s. per week.
King's College Hospital, Denmark Hill, S.E.—Asst. Radiographer.
Kingston-upon-Hull City and County.—Res. M.O. £500.
Lancashire County Council, School Medical and Child Welfare Department.—Dentist. £600.
Lancaster County Asylum.—Asst. M.O. £300.
Lancaster, Royal Albert Institution for the Feeble-Minded.—Asst. M.O. £500.
Leicester Royal Infirmary.—H.S. £250.
Leyton Urban District Council Education Committee.—Second Sch. Dentist. £400.
Lincoln County Hospital.—Jun. H.S. £150.
Liverpool, Fazakerley Sanatorium for Tuberculosis.—Asst. Res. M.O. £300.
Liverpool Infirmary for Children.—H.P. £90.
London County Council, Mental Hospital, Cane Hill, Coulsdon.—Asst. M.O. 7 gs. a week.
London County Council Mental Hospitals Service.—Fifth Asst. M.O.'s. £300.
Maidstone, West Kent General Hospital.—H.P. £200. Hon. Orthop. S. and M.O.
Manchester Children's Hospital, Pendlebury, near Manchester.—Res. M.O. £150.
Manchester Union.—M.O. £1000.
Margate, Royal Sea-Bathing Hospital for Surgical Tuberculosis.—Res. S. £200.
Merthyr Tydfil County Borough.—Female M.O. £500.
Newcastle-upon-Tyne and Northumberland Sanatorium for Consumptives, Barrasford, North Tyne.—Med. Supt. £500.
Newcastle-upon-Tyne, Hospital for Sick Children.—Junior Res. M.O. £200.
New Zealand, Auckland Hospital.—Bact. and Path. £900.
Northumberland County Council.—County M.O.H. and Sch. M.O. £800.
Norwich City.—Asst. M.O.H. £350.
Nottingham City Asylum, Mapperley Hill.—Sec. Asst. M.O. £400.
Nottingham General Hospital.—Hon. M.O. for X Ray and Electro-Therapeutic Dept.
Notts County Council.—Asst. Tubere. O. and Asst. Sch. M.O. £500.
Queen Mary's Hospital for the East-End, Stratford, E.—Hon. Asst. P.'s. Res. M.O.
Queen's Hospital for Children, Hackney-road, Bethnal Green, E.—Res. M.O. £200.
Reading, Royal Berkshire Hospital.—Second H.S. £200.
Roxburgh County.—Asst. Tubere. O. £450.
Royal Chest Hospital, City-road, E.C.—Res. M.O. and H.P. £200 and £120.
St. Bartholomew's Hospital and College.—Sen. Demonstr. of Physiology. £400.
St. Mary's Hospital, Paddington, W.—Clin. Asst. in X Rays Dept.
St. Thomas's Hospital, S.E.—Fellowship. £600.
Sheffield Royal Hospital.—Asst. Cas. O. £120.
Shrewsbury Borough.—M.O.H. £650.
South London Hospital for Women, South Side, Clapham, S.W.—Female Dental S. £25.
Southport General Infirmary.—Sen. H.S. £250.
Stoke-on-Trent.—Female M.O. £500.
Straits Settlements and Federated Malay States.—M.O.'s.
Sunderland County Borough.—Asst. M.O.H. and Maternity and Child Welfare M.O. £500.
University of London, South Kensington.—Examiners.
Wakefield, Clayton Hospital.—Jun. H.S. £150.
Whittingham, Preston, Lancs, County Asylum.—Asst. M.O. £300.
Wigan County Borough Education Committee.—Part-time School Dentist. £150.
Wigan Infirmary.—Junior H.S. £225.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeons under the Factory and Workshop Acts at Hatfield, Salford and Stretford, Shrewsbury, and at Long Melford.

Births, Marriages, and Deaths.

BIRTHS.

BURNHAM.—On Jan. 27th, at a nursing home, Birmingham, the wife of C. Burnham, M.B., Ch.B., F.R.C.S. Edin., of a daughter.
COMYN.—On Jan. 25th, at White House, Hythe, the wife of A. F. Comyn, M.B., of a daughter.
FITZMAURICE-KELLY.—On Jan. 27th, at Palmeira-mansions, Hove, the wife of Major M. Fitzmaurice-Kelly, R.A.M.C., of a daughter.
MCCALL.—On Jan. 27th, at Glenwood, Eltham-road, Lee, S.E., the wife of H. Dundas McCall, M.R.C.S., L.R.C.P., of a son.
SCOTT.—At The Terrace, Camberley, the wife of Major J. W. L. Scott, D.S.O., R.A.M.C., of a son.
VIVIAN.—On Jan. 25th, at Colden Manor, Twyford, Hants, the wife of C. St. A. Vivian, late Temporary Captain, R.A.M.C., of a daughter.

MARRIAGES.

STANGER—BIRKLEY-FORRESTER.—On Jan. 29th, at Fairford Church, Geoffrey Stanger, M.B., to Muriel, third daughter of the Rev. R. Birkley-Forrester and Mrs. Birkley-Forrester.

DEATHS.

BRETTINGHAM.—On Jan. 18th, at Christchurch-road, Bournemouth, Charles Edward Seppings Brettingham, L.R.F.P.S., D.P.H., &c.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Medical Diary.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Feb. 12th.—Papers:—Mr. J. W. McBain and Mr. C. S. Salmon: Colloidal Electrolytes. Soap Solutions and their Constitution (communicated by Prof. S. Young).—Mr. C. C. Farr and Mr. D. B. Macleod: On the Viscosity of Sulphur (communicated by Dr. C. Chree).—Mr. C. V. Raman and Mr. B. Banerji: On Kaufman's Theory of the Impact of the Pianoforte Hammer (communicated by Dr. G. T. Walker, C.S.I.).—Commdr. T. Y. Baker, R.N., and Prof. L. N. G. Filon: On a Theory of the Second Order Longitudinal Spherical Aberration for a Symmetrical Optical System.—Dr. S. Chapman: A Note on Dr. Chree's Discussion of Two Magnetic Storms.—Dr. C. Chree: An Explanation of the Criticisms on Dr. Chapman's Recent Paper "An Outline of a Theory of Magnetic Storms.—Prof. J. W. Nicholson: The Lateral Vibrations of Sharply Pointed Bars.—Mr. R. E. Slade: A New Method of Spectrophotometry in the Visible and Ultra-Violet and the Absorption of Light by Silver Bromide (communicated by Sir Herbert Jackson, K.B.E.).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
Tuesday, Feb. 10th.

OCCASIONAL LECTURE: at 5 P.M.
Professor A. D. Waller: The Measurement of Human Emotion and of its Voluntary Control.

MEETINGS OF SECTIONS.
Monday, Feb. 9th.

WAR (Hon. Secretaries—H. B. Hill, Oliver Robinson, J. McIntyre): at 5.30 P.M.
Discussion:
On "Gas Poisoning," to be opened by Sir Wilmot Herringham. Colonel Cummins, Dr. C. G. Douglas, Professor J. S. Haldane, and others will also speak.

Thursday, Feb. 12th.

BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—J. Campbell McClure, C. F. Sonntag, F. G. Thomson): at 5.30 P.M.
Resumed Discussion:
On "The Merits and Defects of the British Health Resorts."
Dr. F. G. Thomson, Dr. J. Campbell McClure, and Dr. W. P. Kennedy will speak.

NEUROLOGY (Hon. Secretaries—P. W. Saunders, George Riddoch): at 8.30 P.M.
Paper:
Dr. Rows, C.B.E.: Anxiety States.

Friday, Feb. 13th.

CLINICAL (Hon. Secretaries—T. P. Legg, S. A. K. Wilson): at 5.30 P.M.
Cases (at 5 P.M.):
Will members who desire to show cases please communicate with one of the Hon. Secretaries?

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.
MONDAY, Feb. 9th.—8.30 P.M., Dr. H. Drinkwater: The Clinical or Naked Eye Diagnosis of Diphtheria and Other Infections of the Fauces (illustrated with the epidiascope, by coloured drawing and photographs).—Dr. T. B. Hyslop: On Some New Methods of Illustration (illustrated by the epidiascope).

BRITISH PSYCHOLOGICAL SOCIETY (EDUCATION SECTION), London Day Training College, Southampton-row, W.C.
THURSDAY, Feb. 12th.—6 P.M., Dr. C. W. Kimmins: The Dreams of Children in Blind, Deaf, and Industrial Schools.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
MONDAY, Feb. 9th.—5 P.M., Hunterian Lecture:—Prof. H. T. Gray: The Influence of Nerve Impulses on Gastro-Intestinal Disorders—A Surgical Study.
WEDNESDAY.—5 P.M., Hunterian Lecture:—Prof. J. Sherren, C.B.E.: The Late Results of the Surgical Treatment of Chronic Ulcers of the Stomach and Duodenum.
FRIDAY.—5 P.M., Hunterian Lecture:—Prof. W. G. Spencer, O.B.E.: The Historical Relationship between Experiments on Animals and the Development of Surgery. Lecture I.

UNIVERSITY OF LONDON.
Advanced Lectures in Physiology to Students of the University and others interested in the subject.
A Course of Eight Lectures on Physiologically Balanced Solutions will be given by Dr. W. L. Symes in the Physiological Laboratory of the University, South Kensington, S.W.:—
TUESDAY, Feb. 10th.—5 P.M., Lecture III.
A Course of Eight Lectures on the Reaction of the Blood and Acidosis will be given by Dr. J. W. Trevan, at St. Bartholomew's Hospital, West Smithfield, E.C.:—
WEDNESDAY, Feb. 11th.—4.30 P.M., Lecture III.
A Course of Eight Lectures on the Regulation of Respiration will be given by Dr. M. S. Pembrey and Mr. J. H. Ryffel at Guy's Hospital, Borough, S.E.:—
THURSDAY, Feb. 12th.—4.30 P.M., Lecture VI.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Mile End, E.
A Course of Instruction on the Diseases of Children, open to Post-Graduates and to Students of the Hospital. (The lectures will be illustrated by lantern slides.)
MONDAY, Feb. 9th.—9.15 A.M., Lecture V.:—Dr. Thompson: Organic and Functional Nervous Diseases, Meningitis and Mental Deficiency. (At the Anatomical Theatre.)
WEDNESDAY.—10 A.M., Clinical Demonstration:—Dr. Miller. (At the Children's Out-patient Department.)
SATURDAY.—10.15 A.M., Lecture VI., Dr. Hutchison: General Diseases. (At the Anatomical Theatre.)

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, W.
MONDAY, Feb. 9th.—11 A.M., Out-patients: Dr. Goodall. 2 P.M., In-patients: Dr. Moon.
TUESDAY.—2 P.M., Out-patients: Dr. R. Wells. 3 P.M., In-patients: Dr. Gibbes.
WEDNESDAY.—2 P.M., Out-patients: Dr. Moon. 5.30 P.M., Lecture:—Dr. Goodall: Heart Block.
THURSDAY.—10 A.M., In-patients: Dr. Hamill: 2 P.M., Out-patients: Dr. Price.
FRIDAY.—2 P.M., Out-patients: Dr. Gibbes. 2.30 P.M., In-patients: Dr. Wells.
SATURDAY.—10.30 A.M., In-patients: Dr. Hamill.

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Special Course of Lectures and Demonstrations on Tuberculosis for Medical Men and Women qualifying to become Tuberculosis Officers, General Practitioners, and others. Bacteriological Demonstrations will be given in the Laboratories of the Institute, and visits arranged to Sanatoriums, Tuberculosis Dispensaries, &c.
THURSDAY, Feb. 12th.—5 P.M., Lecture V.:—Dr. D. P. Sutherland: The Work of a Tuberculosis Department.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N.
TUESDAY, Feb. 10th.—2 P.M., Demonstration II.:—Mr. H. W. Carson: Hernia, with illustrative cases. 4.30 P.M., Lecture:—Dr. A. Giles: Some Gynæcological Fallacies.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC, Queen-square, W.C. 1.
MEDICAL SCHOOL.
MONDAY, Feb. 9th.—2-3.30 P.M., Out-patient Clinic: Dr. Collier. 3.30 P.M., Dr. Aldren Turner: Paraplegia. II.
TUESDAY, Feb. 10th.—2-3.30 P.M., Out-patient Clinic: Dr. Grainger Stewart. 3.30 P.M., Ward Cases: Dr. Risien Russell.
WEDNESDAY, Feb. 11th.—2 P.M., Mr. Armour: Surgical Treatment of Cerebral Tumours. II. 3.30 P.M., Dr. Grainger Stewart: Disseminated Sclerosis.
THURSDAY, Feb. 12th.—2-3.30 P.M., Out-patient Clinic: Dr. Farquhar Buzzard. 3.30 P.M., Dr. Saunders: Progressive Muscular Atrophy.
FRIDAY, Feb. 13th.—2-3.30 P.M., Out-patient Clinic: Dr. Gordon Holmes. 3.30 P.M., Ward Cases: Dr. Tooth.
SATURDAY, Feb. 14th.—9 A.M., Surgical Operations.
Fee for Post-Graduate Course £7 7s. C. M. HINDS HOWELL, Dean.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith, W.
SATURDAY, Feb. 7th.—10 A.M., Dr. A. Saunders: Medical Diseases of Children.
MONDAY, Feb. 9th.—5 P.M., Mr. Addison: Appendicitis in Children.
TUESDAY.—5 P.M., Dr. Burnford: Clinical Lecture, with cases.
WEDNESDAY.—5 P.M., Mr. Owen: Pneumothorax.
THURSDAY.—5 P.M., Dr. Simson: Uterine Fibroids.
FRIDAY.—4.30 P.M., Special Lecture:—Mr. H. Groves: Bone Grafting in the Treatment of Fractures.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY, Feb. 11th.—4.30 P.M., Dr. Perkins: Demonstration in the Wards.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
TUESDAY, Feb. 10th.—3 P.M., Lecture:—Prof. G. E. Smith: The Evolution of Man and the Early History of Civilisation. III., The Search for Gold.
THURSDAY.—3 P.M., Prof. A. E. Conrady: Recent Progress in Applied Optics. (Lecture II.)
FRIDAY.—9 P.M., Prof. W. M. Bayliss: The Volume of Blood and its Significance.
SATURDAY.—3 P.M., Sir Frank W. Dyson: The Astronomical Evidence bearing on Einstein's Theory of Gravitation: III., Deflection of Light in the Sun's Gravitational Field.

UNIVERSITY OF SHEFFIELD—FACULTY OF MEDICINE POST-GRADUATE DEMONSTRATIONS, at the Sheffield Royal Hospital.
MONDAY, Feb. 9th.—3.30 P.M., Dr. Nutt: X Ray Examination of Bones and Joints.
TUESDAY.—4 P.M., Dr. Hay: Diseases of Conjunctiva.
WEDNESDAY.—3.30 P.M., Dr. Wilkinson: Accessory Sinus Disease.
THURSDAY.—3.30 P.M., Dr. Skinner: Inflammations of Skin.
FRIDAY.—4 P.M., Dr. Hay: Diseases of Cornea.

UNIVERSITY OF BIRMINGHAM—FACULTY OF MEDICINE, in the Anatomical Theatre, Edmund-street, Birmingham.
Post-Graduate Course of Lectures on Venereal Disease:—
WEDNESDAY, Feb. 11th.—4.15 P.M., Mr. B. Whitehouse: Gonorrhœa in the Female. (Lecture I.)

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Feb. 10th.—4.30 P.M., Practical Demonstration:—Local Anæsthesia: Technique.

SALFORD ROYAL HOSPITAL AND ANCOATS HOSPITAL POST-GRADUATE DEMONSTRATIONS, at the two Hospitals alternately.
THURSDAY, Feb. 12th.—4.30 P.M., Lecture:—Mr. Morley: Clinical Manifestations of the Mobile Cæcum. (At Ancoats Hospital.)

Notes, Short Comments, and Answers to Correspondents.

MAN'S ORIGIN.

BY PROFESSOR G. ELLIOT SMITH, M.D., F.R.C.P.

A LECTURE on Man's Origin, the first of a series of three on the Evolution of Man and the Early History of Civilisation, by Professor G. Elliot Smith, was given at the Royal Institution on Jan. 27th.

Man's Fossil Ancestors.

The first part of the lecture was occupied with reviewing the palæontological evidence of the evolution of mankind. A good deal of new evidence had been collected on this subject in the last 10 years, as a result of which the lecturer was able to show not only the stages of man's development, but the particular characters in his remote progenitors from which it had resulted. No remains of the human family had been discovered in geological formations older than the early Pleistocene, but there was evidence from the middle or early Pliocene period of a differentiation from the apes. Incidental characters, though not themselves responsible for development, are useful in proving the affinities of different genera. Such characteristics were demonstrated by means of lantern slide drawings of the transitional stages of jawbone from those of the Tarsioids to those of the modern Anthropoid apes. The resemblance of Tarsioid characters to contemporary Lemuroids was also shown. Although these were very striking, the lecturer pointed out that there were also certain differences to be observed, and that the features in which Tarsius differs from the contemporary Lemur are the same features which show his affinity with the primitive apes and with man. Thus Tarsius is so closely allied with the Lemuroids that the origin of the two from one undiscovered common stock is regarded as certain, and the same animal, whose modern representatives still inhabit the North American continent, exhibit also the characters to which man owes his present supremacy.

The Secret of Man's Success.

Pictures of the skull of Lemur and Tarsius were shown to illustrate their relative increase of brain capacity above that of the other mammals. The relationship of Lemur to these latter is not yet known definitely, but a close relationship had been proven with certain of the shrews. The development of the brain was next called in as evidence of the evolutionary process. Below mammals the dominant guiding sense is that of smell and the olfactory region of the brain occupies the dominant position. In the mammal's brain sight, hearing, and touch are represented, as well as a motor area and an area for "discrimination." The brain of Tarsius showed a relatively huge visual area and a rapidly diminishing olfactory area. The important evolutionary changes in this brain were due to a flattening of the face and to the forward-looking eyes, these two characters resulting in binocular stereoscopic vision. The increased information which resulted from this new power aroused curiosity, and so skilled movements of the hands were called into play, the sense of touch developed, and a new section of cerebral cortex to correlate the sense of touch with that of vision. The mechanism of convergence also provided information and assisted in the development of the brain. In the Lemuroids the projecting snout has prevented all these developments, and an interesting contrast in intelligence is provided at the Zoo to all who will compare the behaviour there of the lemurs with that of the anthropoid apes.

Man represents the straight line of development. It is the animals which have departed from this straight line and for self-preservation have developed specialised characters (e.g., the great strength of the gorilla), who have failed in the race for supremacy. Man has survived and become the greatest of the primates because of his faithful dependence upon the normally developing brain.

The Ethnological Munroe Doctrine.

On Feb. 3rd Professor Smith gave the second lecture of the series, entitled "Elephants and Ethnologists." It was devoted to a discussion of the earliest records of civilisation as found in the excavated monuments and codices of the ancient city of Copan, Honduras. There are two theories held by ethnologists to account for the existence of this civilisation, the earliest records of which date back to about 235 B.C. The one theory supposes that it sprang indigenously from among the American aborigines, and the second that it was implanted by early voyagers across the Pacific. The first theory is held by the majority of ethnologists at the present time, and especially by the Americans, who hold it as a kind of dogma—and it was this theory which Professor Smith set himself, most successfully, to explode. The influence of Eastern conventional art in the earliest drawings and sculpture of the West was proved by reference to the drawings and sculpture found in Copan and in Cambodia—the nearest point in the Malay Archipelago. All the traditions recorded in the ancient Sanskrit writings—the Vedas—find their counterpart in the earliest Western art. The elephant upon which the rain-god Indra was wont to ride is especially prominent, though American ethnologists have tried to explain away the appearance of this foreign animal in various unsatisfactory ways. Descriptions of a creature with "a nose so long that he can draw water from a well" are even found in the folk-lore of the North American Indians. It is impossible to summarise all the detailed argument, but all who listened to Professor Smith must agree that he thoroughly proved his case for the migration of civilisation westwards from the cradle of the race.

COLONIAL HEALTH REPORTS.

Ashanti.

IN a report by the Chief Commissioner for the year 1918 it is stated that the population, admittedly under-estimated at 287,814 in 1911, has increased since then. The European population in 1918 comprised 224 Government officials, 108 merchants, 102 miners, 7 missionaries, and 50 Syrians. Amongst Government officials there were 2 deaths and 24 invalidings, and among the miners 6 deaths and 8 invalidings. Five Syrian traders died from influenza.

There was a marked increase in the number of patients in the European Hospital, due largely, but not entirely, to an epidemic of influenza which swept over Coomassie in the month of October. The presence in Coomassie during the last three months of the year of an unusually large number of officers and British N.C.O.'s of the Gold Coast Regiment, who had returned from the East African campaign, many of them saturated with malaria, helped to swell the total. The health of the civilian Government officials continued fair notwithstanding the prolonged tours and increased duties demanded of them by the exigencies of the service. The health of the general European population was fair. There is evidence of the steadily increasing popularity of the Government native hospitals and of the increasing desire of the natives to avail themselves of the benefits of European treatment.

Influenza assumed a pandemic form in October and spread from Coomassie to all villages in the vicinity and also along the Ejura Road towards the Northern Territories. The onset was inevitable owing to the contagiousness of the disease and the impossibility of instituting effectual preventive measures in such a country. In Coomassie 381 natives, 5 Syrians, and 2 Europeans were registered as having died of influenza, but this by no means represents the real loss sustained by the community, as by far the greater portion of bodies was taken out of the town for burial and remained unregistered. The following is an approximate return of the deaths due to the scourge: Central Province, 4500; Western Province, 1500; Northern Province, 500; Southern Province, 2500; total, 9000.

The most prevalent diseases besides influenza were the same as in previous years, viz.: malaria, skin diseases, and diseases of the pulmonary and digestive systems. 2846 people were vaccinated—2264 successfully. The rainfall for the year was 61·96 inches at Coomassie, 67·17 at Obuasi, 71·73 at Kintampo, and 41·21 at Sunyani. The mean temperature was 74·95° at Coomassie, 78° at Obuasi, and 79° at Kintampo.

The climate is not suited for permanent European settlement. The average stay in the country is of 12 months' duration, after which recuperation in a more bracing climate is desirable

Northern Territories of the Gold Coast.

Mr. C. H. Armitage, Chief Commissioner, reporting on the affairs of these Territories for 1918, writes that there were no deaths among the European officials, but 80 were placed on the sick list during the year and 10 were invalided. All the invalidings but one occurred amongst the European officers and non-commissioned officers of the training centre which has been established at Tamale, and which has greatly increased the number of Europeans in the country.

The Census completed in 1911 gave an estimated population of 361,806 to the Northern Territories, with a computed area of 31,100 square miles—an average of 11·6 persons to the square mile. The Census returns for the Southern and North-Western Provinces were considered to be fairly accurate, but those of the North-Eastern Province fell far short of being correct, and it is estimated that not more than two-thirds of the inhabitants were enumerated. Systematic work continues to be carried on in order to render the next Census returns reliable in every respect. In spite of a heavy infant mortality it is considered that the population at the present day is greatly in excess of that shown in the last Census returns.

An outbreak of measles occurred in May at Bolgatanga, in the Zouaragu district of the North-Western Province, from which 425 deaths were reported, mainly among the children, who, owing to the shortage of food that then prevailed, were badly nourished and unable to withstand the attack. The North-Western Province suffered heavily from disease throughout the year. During the first quarter small-pox, which had broken out in 1917, was still rife in certain villages, and it was not until the second quarter that an adequate supply of lymph was sent up and vaccination was undertaken. This disappeared by the end of the quarter. 5687 natives were vaccinated in the Tumu District towards the end of the year by a French native vaccinator, who used serum prepared at Ouagadougu by the French medical officer, which was kindly supplied

through the good offices of the Resident at Leo. 140 children were inoculated at Tumu under the supervision of our medical officer, when only 8 of these showed no signs of the serum having taken. Many more people could have been vaccinated had not the natives been prostrated by influenza when the vaccinator's services were available.

In March a mysterious disease, afterwards diagnosed as anthrax, made its appearance in the Lorha District and was accountable for a number of deaths. In October the whole province was swept by influenza, which levied a heavy toll on the unfortunate natives. There is reason to believe that the following figures, obtained from the chiefs and headmen, greatly under-estimate the mortality that occurred: Southern Province, 2517; North-Eastern Province, 18,267; North-Western Province, 7880; total, 28,664. It is thought that the high mortality in the North-Eastern Province was due to the lack of clothing worn by the natives. Another feature of the epidemic was that it seemed to pass by the old and decrepit of both sexes and to select its victims from among the young and robust.

Leprosy is not on the increase and, while uncommon in the Southern and North-Western Provinces, is of more frequent occurrence in the North-Eastern Province. The natives look upon it as "a visitation of Allah," but say that it shows no signs of spreading and are generally averse to compulsory isolation.

The climate of the Northern Territories, while similar to that of the Gold Coast and Ashanti, may be said in comparison with them to be more trying in its extremes. It possesses an insidious quality that lowers the vitality of Europeans and renders unduly prolonged residence on their part inadvisable, and it is generally recognised that a period of recuperation in a more bracing and salubrious climate is necessary after a year's stay in the country.

A VOCAL THERAPY SOCIETY.

CURATIVE singing, to which allusion has recently been made in the public press, is a well-established treatment, training in singing having proved to be valuable, not only for the development of deficient breathing and the relief of loss of voice by stammering, but also by helping in the recovery of memory. The exhilarating effect of vocal efforts have resulted in a gain of mental and physical control. An earnest appeal for subscriptions to support and organise this form of treatment has been issued by Sir Bryan Donkin, chairman of the Vocal Therapy Fund, and the Dowager Countess of Carnarvon, vice-chairman, and replies should be made to the honorary treasurer, H. E. Bury, Esq., 47, Lincoln's Inn Fields, London, W.C.2, or the honorary secretary, 32, Charles-street, Mayfair, W.1.

"GREY POWDERS."

RECENTLY, at Exeter, a druggist was summoned for selling to the sanitary inspector, "grey powders," which were not of the substance demanded. It was stated that the powders contained calomel with other ingredients, and not the mercury and chalk of the official Pharmacopœia preparation. For the defence it was stated that the firm had been selling "a grey powder" since 1868; it was a preparation of their own and grey in colour. A magistrate remarked that *before* 1898 only Latin descriptions were used in the Pharmacopœia, and consequently the term "grey powder" was not mentioned. For the defence it was contended that six grey powders had been purchased as one article, and only one powder had been analysed, whereas the whole six powders should have been examined. The bench of magistrates upheld this view, and the case was dismissed. The deputy town clerk remarked that the local authority had obtained their object in ventilating the case. The public danger indicated by the defence is a little startling.

A MYXŒDEMATOUS ARTIST.

To the Editor of THE LANCET.

SIR,—Dr. H. Crichton Miller, in his paper on the Endocrine Glands in Mental Disorder read before the Royal Society of Medicine and reported in THE LANCET of Jan. 24th last, asks "Who has ever conceived of a myxœdematous artist?" It is true the case was not one of myxœdema, but since this and cretinism are both due to hypothyroidism Dr. Miller may be interested to know that a *cretin imbecile*, named Gottfried Mind, who was born in Berne in 1768 and who died at the age of 46 years, acquired such a reputation as an artist as to be known as "The Cat's Raphael." He is referred to in my book on "Mental Deficiency" under "Idiots Savants."

I am, Sir, yours faithfully,

Jan. 27th, 1920. A. F. TREDGOLD, M.D.

AN INTERESTING ETYMOLOGY.

To the Editor of THE LANCET.

SIR,—For many years I have seen the name "Stovaine" referred to in medical literature, and have also seen the name in medical dictionaries without any etymology. Last week, when wishing to discover whether the word had a final "e," I consulted Dorland's Medical Dictionary, last edition, and found this interesting addition: "Named for the discoverer, Fourneau, which is French for 'stove.'" Being interested in etymology, I thereupon wrote to Messrs. Poulenc Frères, of Paris, to confirm this, and their reply, dated Jan. 15th, should, it seems to me, be preserved. The translation is as follows.

"The etymology given by the American dictionary of 'stovaine' is perfectly correct. At the time of the baptism of the new local anæsthetic, which first saw the light in our laboratories, we wished to introduce into the fancy name which should designate it the name of the discoverer, M. Fourneau. As it was impossible to create a euphonic word in French with this name, we took the English translation of the common corresponding name, which lent itself marvellously to this purpose. M. Fourneau has been for several years the head of our research laboratories. While remaining our technical adviser, he is now professor of chemiotherapy at the Pasteur Institute and a member of the Academy of Medicine."

Future students might be grateful for this information.

I am, Sir, yours faithfully,

Jan. 19th, 1920. W.

THE MEMBERS OF PENSIONS BOARDS.

To the Editor of THE LANCET.

SIR,—Surely there is something very far wrong when doctors with enormous panel lists of 3000 and 4000 can afford to spend so much of their time officiating on the medical pensions boards. Is it at all reasonable to expect that these men can be doing their duty to their panel patients and be able to spend forenoon and afternoon for three, four, and five days a week away from their practices? Many of us now struggling to build up again the practices we sacrificed have to compete on even, and less than even, terms with these men, while many of them stayed at home and obtained the job when we were on active service.

I am, Sir, yours faithfully,

Jan. 28th, 1920. EX-R.A.M.C.

*** We hope that there are not many practitioners, whether on or off the pensions boards, who conduct individually such panel practices.—ED. L.

Communications, Letters, &c., to the Editor have been received from—

A.—Dr. E. L. Ash, Lond.; Dr. F. W. Andrewes, Lond.; American Dietetic Association, New Haven.

B.—British Guiana, Surgeon-General of, Demerara; Dr. W. L. Brown, Lond.; Mr. H. W. Bayly, Lond.; Mr. L. E. Barrington-Ward, Lond.; Dr. Barnardo's Homes, Lond., Sec. of; Mrs. Boyd, Lond.; Mrs. H. Benn, Lond.; Dr. G. Blacker, Lond.; Dr. F. Brabander, Paris.

C.—Dr. C. W. Cunnington, Lond.; Surg.-Lieut.-Commdr. H. St. C. Colson, R.N.; Dr. A. Castellani, Lond.; Dr. C. Coombs, Bristol; Continental Surgical Supplies Co., Lond.; A Camberley Resident; Miss G. Cowlin, Lond.; Dr. A. F. Cameron, Dartford; Mr. V. Z. Cope, Lond.; Dr. R. G. Canti, Lond.; Dr. H. P. Cholmeley, Forest Row.

D.—Messrs. Down Bros., Lond.; Dr. R. Donald, Lond.; Dr. D. Dougal, Manchester; Dr. V. Dickinson, Lond.; Mrs. E. Davidson, Lond.

E.—Miss E. Evans, Cardiff; Ex-R.A.M.C.; Capt. J. I. Enright, R.A.M.C., Liverpool; Mr. W. L. Eastcott, Lond.

F.—Federation of Medical and Allied Societies, Lond.; Dr. J. Fairley, Portsmouth; Dr. A. Francis, Lond.; Mr. J. A. C. Forsyth, Lond.

G.—Great Northern Central Hospital, Lond., Sec. of; Mr. H. T. Gray, Lond.; Sir A. E. Garrod, Lond.

H.—Dr. J. Haddon, Denholm; H. M. R.; Dr. M. L. Hine, Lond.; Harvard University Press, Cambridge, Mass.; Dr. O. Holden, Swansea.

I.—Ideal Homes Exhibition, Lond.

K.—Dr. B. Kingsford, Lond.; The King's Services Choir, Lond., Chairman of; Dr. R. Knox, Lond.; Dr. D. Keilin, Cambridge.

L.—London Hospital Medical College, Sec. of; Dr. H. E. Littledale, Charing; Miss J. Lublin, Lond.; Mr. C. E. Lesching, Tiverton; Lieut.-Col. R. W. P. Lodwick, Camberley; London (Royal Free Hospital) School of Medicine for Women.

M.—Medical Supply Association, Sheffield; Metropolitan Life Insurance Co., New York; Dr. W. F. Menzies, Cheddleton; Medico-Psychological Association of Great Britain and Ireland; Thomas McLean's Galleries, Lond.; Dr. M. Molony, San Francisco; Ministry of Health, Lond.; Dr. P. Macdonald, York; Major, R.A.M.C.; Dr. J. B. Mennell, Lond.

N.—National Physical Laboratory, Teddington; National Union of Trained Nurses, Lond.; National Anæsthesia Research Society, Columbia; National Committee for Mental Hygiene, New York; National Safety Council, Chicago.

O.—Dr. T. H. Oliver, Manchester.

P.—Dr. W. A. Potts, Birmingham; Dr. L. J. Picton, Holmes Chapel; Dr. L. A. Parry, Hove.

R.—Dr. S. Russ, Lond.; Miss E. Rout, Lond.; Dr. B. Rasck, Christiania; R. L. G.; Dr. G. M. Robertson, Edinburgh; Mr. H. S. Reynolds, Wisbech; Dr. J. D. Rolleston, Lond.; Royal Society, Lond.

S.—Mr. R. E. Smith, Barry; Mr. F. St. J. Steadman, Lond.; Mr. R. L. Sheppard, Lond.; Dr. C. O. Stallybrass, Liverpool; Dr. R. H. Shaw, Great Yarmouth; Prof. E. Sauerbruch, Munich; Dr. T. H. C. Stevenson, Lond.; Scottish Board of Health, Edinburgh; Society of Apothecaries of London, Sec. of; Society for the Prevention of Venereal Diseases, Lond., Sec. of.

T.—Dr. J. Taylor, Lond.; Dr. T. E. H. Thaysen, Copenhagen; Dr. F. Thomson, Lond.; Dr. W. W. D. Thomson, Belfast; Dr. A. H. Thompson, Lond.; Mr. P. Turner, Lond.; Mr. H. P. Turner, Manchester.

U.—University of Manchester.

W.—Mr. H. Wiltshire, Lond.; Dr. F. J. Waldo, Lond.; Dr. A. M. Webber, Nottingham; Dr. N. Wood, Lond.; W. J. P.; Dr. K. M. Walker, Lond.; Dr. S. A. K. Wilson, Lond.; West London Hospital Post-Graduate College, Sec. of; Dr. J. D. Wynne, Norwich; West London Medico-Chirurgical Society, Sec. of.

Y.—Mr. M. Yearsley, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, W.C.